Canada - New Brunswick
Flood Damage Reduction Program

Hydrotechnical Study Of The Walker Brook Flood Plain

Restigouche County

Supplementary Report
On

Physical Surveys And
Field Program

January, 1983

CCC
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PHYSICAL SURVEYS
AND
FIELD PROGRAM
WALKER BROOK HYDROTECHNICAL STUDY

1.0 Introduction

The objectives of the hydrotechnical study of the Walker Brook watershed were: (1) to develope 1:20 and 1:100 return period flood hydrographs for the drainage basin, and (2) to define water surface profiles along Walker Brook for these two design events. The methodology and hydraulic modelling components used to attain these objectives are described in the text of the main report. This Supplementary Report summarizes the field data acquired for application in the modelling program and is limited to water level measurement and field survey activities.

2.0 Field Program

The field program included: installation of staff and crest gauges; obtaining water level measurements from these various gauges during peak runoff conditions; identifying and obtaining physical dimensions of all hydraulic structures along the watercourse, from the confluence of Walker Brook with the Restigouche River to Val d'Amour; and defining the physical characteristics of the channel and flood plain at various locations along the Brook by means of surveyed cross-sections.

All of the field program was undertaken by staff members of Spear, MacDonald & Associates Limited with the assistance of members of Cumming, Cockburn & Associates Limited. Arrangements were made with local individuals to assist in reading the staff and crest gauges during peak runoff events. As well three university students from the area were engaged to assist with the surveying activities.

The ensuing sections describe the activities of the field and the data collection programs on the study watershed.

2.1 Gauging Stations

An initial review of orthophoto mapping for the area coupled with a review of the two previous background studies by King[1] and Folster[2] on the area suggested that eight crest gauges would likely be adequate for obtaining a representative measure of water levels along Walker Brook. The criteria for locating the gauges was ostensibly in the main stream channel at locations where structural constraints (culverts and bridge openings) were such as to impede heavy flow discharge and hence result in backwater buildup.

A total of twelve 2.5 metre long crest gauges were manufactured by Apex Machine Works, Moncton - eight for the originally proposed locations, two additional for supplementary placement in the field plus an additional two units for backup in case of vandalism or as replacements for units destroyed by ice or debris.

The initial field reconnaissance was made during the week of April 5, 1982 at which time the locations for the crest gauges were finalized. During these investigations three crest gauges installed as part of a previous study on Walker Brook were located.

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[1] King, John A.T., Surveying for Hydrotechnical Study, Walker Brook Project, Flood Risk Mapping Sub-program, N. B. Dept. of Environment, 1978.

[2] Folster, M.E., Review of Historical Floods, Walker Brook and Campbellton Waterfront, August, 1980.

As, with minor repair, these gauges were found to be in working order, they were incorporated in the field monitoring program for this study. Therefore the initial monitoring program was revised and a total of thirteen crest gauges were installed along the watercourse. Thus, a very comprehensive means of portraying the hydraulic conditions along the Brook was established.

Due to the possibility of vandalism coupled with the fact that some of the crest gauges might be rendered inaccessable during peak flood conditions, fourteen locations were selected for the installation of staff gauges. The staff gauges (3 metres long) were made by Spear, MacDonald staff and were installed in the same general locations as the crest gauges by the field personnel on April 19th, 1982. These latter gauges also insured that the most severe event on Walker Brook could be assessed.

Elevations were established for all staff and crest gauges and tied into temporary bench marks. These temporary bench marks and hence the gauge datum were converted to Geodetic during the subsequent topographic field survey of the watercourse.

The location, type and Geodetic elevation of the staff and crest gauges are listed in Table 1, Section A at the back of this Report. Photographs of all gauge locations are included in Section B. Figure 1, Section F also shows the location of the gauge points within the watershed.

2.2 Photographic Analysis

Photographs of the watershed were taken by the field personnel on April 21, 1982. These photographs generally show the types of structures along the watercourse, staff and crest gauge locations, physical features, and the melt stage of the watershed at the time of photography.

At the time the photographs were taken, the depth of flow in Walker Brook was approximately 0.15m. There was open water throughout with no evidence of ice or debris accumulations although the potential for jamming was evident at several locations along the lower reaches downstream of Sugarloaf Park. A photo inventory is provided in Section B at the back of this Report.

2.3 Physical Surveys

The physical surveys taken as part of the field program included defining structure types and sizes along the watercourse, obtaining representative cross-sections of the Walker Brook channel and flood plain and referencing these cross-sections to the N.B. Double Stereographic Mapping Plain Co-ordinate System (metric), and gathering water level measurements at the gauge locations during high runoff conditions. The foregoing were largely in response to the modelling needs and are described in the following sub-sections.

2.3.1 Structures

Each of the structures along Walker Brook represents a potential flow constriction which can, and in many instances does, have a pronounced effect on water surface profiles during high flow periods. Accordingly, physical dimensions and critical elevations of all structures were obtained as follows:

For Bridges

- Clear span opening between piers and abutments.
- Height of bridge deck above the channel bottom both on the upstream and downstream sides.
- Intermediate pier dimensions and configuration.
- Deck surface elevation.
- Soffit elevation.
- Depth of flow at centre of span or channel at the time of survey.

For Culverts

- Culvert type (i.e.: C.M.P. encased, etc.)
- Configuration about the inlet/outlet (i.e.: projected, flush)
- Culvert shape and opening size.
- Depth of flow in culvert at the time of survey.
- Road centerline elevation (top of deck).
- Soffit elevation.

The data sheets for each of the structures along Walker Brook are provided in Section C at the back of this Report. Photographs of each of the structures are contained in Section B and a "Key Plan" showing the various structure locations is included as part of Figure 1, Section F.

2.3.2 Cross-Sections

A total of 43 cross-sections were surveyed along Walker Brook from the confluence with the Restigouche River to the intersection of Highways 270 and 275 upstream of Val d'Amour near McKendrick. A key plan showing the location and orientation of these sections is provided in Figure 2, Section F at the back of this Report. The plotted cross-sections are included as Section D.

An extensive overland control survey was undertaken by the field personnel to insure proper documentation and plotting of the cross-sections. Existing N.B. Grid Monuments were used as base lines where practical; however, there was an extensive area where such monuments were non existent and consequently a control line had to be established. The control line extended westerly along the south side of Highway 11 from Gallant Drive to the intersection of Highway 270, then southerly along Highway 270 to the upper limits of Val d'Amour, a distance of approximately 7.4 kilometres. All of the measured cross-sections were referenced directly to the control line by both distance and angle. In most instances section points were also used as the control points for the survey line.

Co-ordinates for all control and cross-section intersection points along the control line were subsequently calculated and are summarized in Table 2, Section A. The azimuths for each cross-section line were also calculated and are included as part of the cross-section data in Section D.

A check was made on the accuracy of the control survey upon completion of the work and it was determined that the error of closure was 00° - 07' - 18". Considering the distance and terrain covered the error of closure was considered negligible and consequently no adjustments were made to any of the control angles.

Following establishment of the control and cross-section points a series of level circuits were run to tie each point to Geodetic. At the same time the temporary bench marks used for staff and crest gauge data were included in the survey and reduced to Geodetic.

During the level circuitry work it was noted that several of the N.B. Grid Monument elevations were not in agreement with the spirit level monument (No. 14590) which is situated near the Hotel Dieu Hospital. Since the spirit level monument was considered to be the most accurate and reliable bench mark in the area, all monuments downstream of Sugarloaf Park were referenced to this point by means of a separate level circuit. The calculated differences for the various monuments are shown in Table 3 of Section A.

Not all of the monuments were referenced to the spirit level monument. It was found that two monuments immediately upstream of Sugarloaf Park were generally within 0.03m of the reference point. In addition, elevation closure between monuments in the upper reaches of Walker Brook were found to be within acceptable limits. In view of the relatively steep slope of the Brook above Sugarloaf Park it was decided not to make any adjustments to the monument elevations between Sugarloaf and Val d'Amour. The resulting effects on water surface profiles would likely be negligible with respect to such adjustments. For the lower reaches through and below Sugarloaf Park, which previous studies have shown to be the most flood prone areas, corrected monument elevations were used to derive elevation points for all cross-section, structure and gauge data.

A plot of the entire control survey is included as Figure 3, Section F.

2.3.3 Water Level Measurements

During the initial field reconnaissance investigation, two local residents were retained to take gauge readings during the spring melt period. Mr. Ron Pyne, Proprietor of Pyne Photographic Services, Campbellton agreed to serve as principal co-ordinator for the work. He provided Ms. May Bernier, one of his staff members, as a backup to himself. Mr. Pyne was selected due to his technical background in climatologic investigations developed through his employment by the Atmospheric Environment Service, and based on his previous experience in undertaking a similar investigation on Walker Brook for the Department of Environment. Both individuals were instructed as to the workings and function of the gauges as well as the requirements for reading both staff and crest gauges. They were also supplied with a form upon which to record the data observed at each gauge. An additional part of the gauge observation team's assignment was to obtain and record photographs of flooding conditions along the Brook, as well as documentation on any ice flows and/or debris jams which might occur during the spring thaw.

All gauges were installed and operational by April 24th, 1982. On April 26th, Spear, MacDonald and Associates Limited were advised that both staff and crest gauges on the upstream side of Village Road (No.'s 2 and 3) had been destroyed by vandals. On the following day, the crest gague (No. 4) on Gallant Drive was reported missing. The decision was made not to replace these gauges at the time as there were other gauges still intact which would adequately reflect the measure of any flood event in the area.

During the period April 24, 1982 to July 31, 1982 there was only one day where discharge in Walker Brook was sufficient to yield measureable readings from the gauges. This was on April 27th during a light rain. The measurements recorded are shown on the data sheet in Section E. Two photographs of the flow conditions which occurred at the Gallant Drive Bridge on this date are also included at the back of Section E.

Generally speaking, the snow melt over the watershed occurred very gradually during the spring of 1982. As a result there was little effect on base flow conditions in Walker Brook and at no time did any flooding occur within the study area. The monitoring personnel have been on standby since June, 1982 but to date no event has occurred of sufficient magnitude to reflect any measure on any of the gauges. This represents a substantial departure from previous years in that flooding usually occurs along Walker Brook between Village Road and Highway No. 11 during the spring melt.

SECTION A - TABLES

Table 1 - Staff/Crest Gauge Locations

Table 2 - Survey Control Points and Cross Section Locations

Table 3 - List of N.B. Grid Monuments Used for Survey Control

Table 4 - Hydrometric Station Data

TABLE 1

STAFF/CREST GAUGE LOCATIONS

FOR

WALKER BROOK HYDROTECHNICAL STUDY

RESTIGOUCHE COUNTY, N. B.

Gauge No.	Type	Bottom Elev. (m)	Location
1	Staff	1.942	Hydro pole near truss bridge for waterline at Ramsay Street
2	Crest	2.758	Upstream of Village Road on Wingwall of culvert
3	Staff	4.118	Upstream of Village Road on Wingwall of culvert
4	Crest	6.208	Upstream of Gallant Drive on bridge
5	Staff	7.646	Downstream of Gallant Drive on poplar tree approximately 30 metres from road
6	Staff	7.056	Downstream of Gallant Drive on hydro pole
7	Crest	10.586	Downstream of Gerrard St. bridge on centre support
8	Staff	10.901	Downstream of Gerrard St. bridge on poplar tree approximately 30 metres from road
9	Crest	13.298	Upstream of Dover Street culvert on Wingwall
10	Staff	13.318	Downstream of Dover Street culvert on oak tree approximately 30 metres from road
11	Crest	19.340	Intersection of Pine Street & Ila Road on Wingwall of storm sewer outfall
12	Crest	23.398	Upstream side of abutment of pedestrian walkway bridge on Alexander Street
13	Staff	23.123	Upstream side of pedestrian walkway bridge on Alexander on retaining wall

TABLE 1

(CONTINUED)

Gauge No.	Type	Bottom Elev. (m)	Location
14	Staff	28.976	Upstream side of Dover Street culvert on the New Brunswick Electric Power Commission's fence corner post
15	Crest	31.644	Upstream of Highway No. 11 on culvert
16	Staff	31.254	Upstream side of Highway No. 11 approximately 100 metres east of culvert on poplar tree
17	Staff	34.325	Three hydro poles down stream of WSC gauge on hydro pole
18	Staff	50.786	Upstream of snowmobile culvert under Highway 270 approximately 30 metres off road on poplar tree
19	Crest	67.631	Upstream side of the second driveway bridge above the snowmobile culvert under Highway 270 on bridge abutment
20	Crest	91.336	Upstream of Bramham Gulch Road on bridge abutment
21	Crest	104.449	Val D'Amour, upstream of road to Malauze on bridge abutment
22	Staff	103.969	Val D'Amour, upstream of road to Malauze on retaining wall approximately 15 metres from bridge
23	Crest	111.589	Val D'Amour, upstream side of culvert at intersection of Lilly Lake Road.
24	Crest	113.854	Val D'Amour, upstream side of cemetary bridge on bridge abutment
25	Staff	113.804	Val D'Amour, upstream side of cemetary bridge on bridge abutment
26	Crest	131.561	Val D'Amour, upstream side of road to bodyshop on bridge abutment
27	Staff	132.031	Val D'Amour, upstream of bodyshop on old bridge abutment

TABLE 2

SURVEY CONTROL POINTS

AND

CROSS SECTION LOCATIONS

WALKER BROOK HYDROTECHNICAL STUDY

RESTIGOUCHE COUNTY, N.B.

Section/Control Point (*)	Distance (m)	Co-ordinates Northing	 Easting	Elevation (m)**
S - 1		959763.104	289259.756	226.054
S - 2		959759.022	288960.736	209.346
S - 3		959922.796	288696.177	195.278
S - 4		960108.856	288587.834	203.079
S - 5		960458.901	288211.876	179.024
S - 6		961000.889	287657.063	158.876
S - 7		961143.112	287042.695	136.486
S - 8		961372.386	286804.56	129.290
S - 9		961602.403	286553.818	124.576
S - 10		961816.329	286330.403	114.429
S - 11		961852.174	286365.833	115.919
Mon # 14749		961816.329	286330.403	114.429
	142.460			
C - 1		961904.785	286218.733	112.200
	135.663			
S - 12		961921.859	286071.489	111.101
	181.549			
S - 13		961973.822	285897.536	107.219
	136.368			
S - 14		962094.658	285834.329	103.864
	215.372			
S - 15		962308.720	285810.617	102.052

TABLE 2

(CONTINUED)

Section/Control Point (*)	Distance (m)	Co-ordinates Northing	Co-ordinates Easting	Elevation (m)**
S - 15		962308.720	285819.617	102.052
	170.746			
C - 2		962369.469	285651.043	100.834
	178.098			
C - 3		962369.963	285472.946	99.614
	44.993			
S - 16		962393.261	285434.455	98.394
	223.091			
C - 4		962616.349	285435.574	88.395
	228.168			
C - 5		962808.321	285312.256	86.039
	125.353			
C - 6		962855.244	285196.017	83.684
	225.820			
C - 7		963043.923	285071.771	80.507
	110.339			
C - 8		963152.399	285052.186	77.331
	111.930			
C - 9		963258.960	285086.435	75.224
	145.465			
S - 18		963330.372	284959.702	73.117
	132.083			
C - 10		963454.259	285005.513	69.772
	201.183			
C - 11		963568.769	285170.928	67.174
	105.762			
C - 12		963669.549	285203.003	65.572
	148.991			
S - 19		96316.551	285178.734	63.969
	107,179			
C - 13		963911.283	285128.603	61.733
	177.876			
C - 14		964078.750	285188.558	59.498
	239.420			
C - 15		964312.692	285137.636	57.262
	73.176			
S - 20		96435.759	285188.020	55.026
	98.068			
C - 16		964446.523	285243.650	54.378
	174.948			
S - 21		964601.317	285162.129	53.731

TABLE 2

(CONTINUED)

Section/Control Point (*)	Distance (m)	Co-ordinates		Elevation (m)**
		Northing	Easting	
S - 21		964601.317	285162.129	53.731
	257.495			
C - 17		964816.287	285020.383	49.069
	275.000			
S - 22		965027.099	285196.971	44.406
	153.159			
S - 25		965078.142	285341.374	42.578
	117.723			
C - 19		965190.068	285377.862	40.618
	71.213			
S - 26		965243.382	285330.649	38.658
	179.033			
S - 27		965409.179	285398.209	37.418
	69.531			
C - 20		965466.398	285358.706	42.452
	148.965			
C - 21		965607.036	285309.598	37.558
	251.767			
C - 21A		965795.014	285477.082	32.664
	208.609			
S - 29		965917.581	285645.888	29.389
	207.075			
S - 30		966018.364	285826.782	27.508
	94.410			
C - 22		966047.794	285916.488	25.589
	214.329			
S - 31		966088.459	286126.9237	23.670
	1341.680			
C - 26		966264.450	287457.011	3.670
	76.578			
Mon # 14592		966284.025	287531.045	19.713
S - 16		962393.261	285434.455	98.394
	139.521			
S - 17		962532.365	285423.673	90.751
C - 21A		965795.015	285477.082	32.664
	62.550			
S - 28		965766.165	285421.583	34.484

TABLE 2

(CONTINUED)

Section/Control Point (*)	Distance (m)	Co-ordinates Northing	Co-ordinates Easting	Elevation (m) **
S - 31		966088.459	286126.924	
	358.800			
C - 29		966427.808	286010.392	
	223.500			
S - 32		966500.396	286221.776	
Mon # 14580		966678.665	286329.196	25.778
	70.450			
S - 33		966609.702	286343.592	23.781
	184.834			
S - 33B		966434.778	286403.301	17.321
	107.978			
S - 33C		966332.235	286437.127	18.361
	266.075			
S - 34		966447.288	286677.041	15.001
	155.760			
C - 27		966519.229	286815.192	14.300
	283.250			
S - 35		966546.063	287097.168	13.818
S - 36		966320.515	287420.381	8.846
S - 37		966599.701	287681.389	7.718
S - 38		966847.351	287741.072	7.999
C - 28		966819.634	287981.226	7.503
S - 39		966829.791	288044.182	5.973
S - 40		967057.129	288197.600	4.731
S - 41		967232.901	288389.077	2.641
S - 42		967256.780	288441.663	2.984
S - 43		967263.935	288437.891	2.988

TABLE 2

(CONTINUED)

NOTE:

* S-1 denotes cross section point and section number.
C-1 denotes survey control point and number.

** All elevations are Geodetic. S-12 to S-43 inclusive and C-1 to C-28 inclusive are referenced to N.B. Grid Monument No. 14590. S-1 to S-11 are referenced to N.B. Grid Monument as shown on Figure No. 3 .

TABLE 3

LIST OF N.B. GRID MONUMENTS
USED FOR SURVEY CONTROL
WALKER BROOK HYDROTECHNICAL STUDY
RESTIGOUCHE COUNTY, N.B.

Monument No.	Elevation (m)	Corrected * Elevation (m)
14590	41.870	
14589	9.880	9.684
14591	8.210	8.064
14592	19.840	19.713
14580	25.790	25.778
14581	23.180	23.145
14582	21.050	21.051
14583	35.240	35.193
14749	114.590	114.429
14750	127.900	
14751	146.200	
14752	158.220	
14755	183.570	
14757	188.320	
14759	213.050	

*NOTE: All elevations are Geodetic. Monument No. 14590 is the only spirit leveled bench mark in the area. A level circuit was run on all monuments downstream of Sugarloaf Park and referenced to the spirit monument. Elevation corrections were then made to the given monument elevations which are shown in the table. No elevation corrections were made to monuments upstream of Sugarloaf Park.

TABLE 4

HYDROMETRIC STATION DATA

FOR

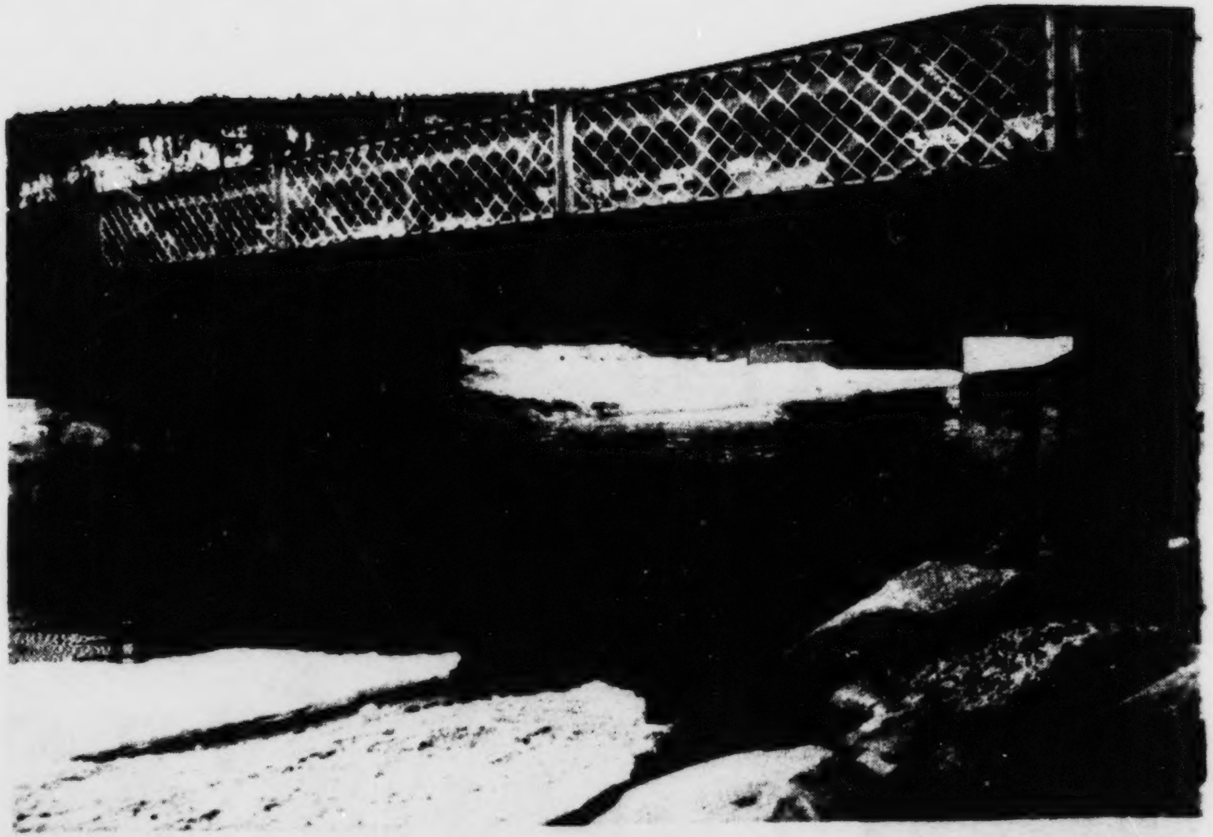
WALKER BROOK HYDROTECHNICAL STUDY

RESTIGOUCHE COUNTY, N.B.

Bench Mark No.	Location description	Geodetic Elev.
N.B. 80-17	Red mark on top of rock outcrop 2.4m from water's edge.	35.972
N.B. 80-18	Red mark on top of rock outcrop 3.0 m from water's edge.	36.260
N.B. 80-19	Anchor bolt located on the downstream corner of cableway "A" frame footing.	38.120

SECTION B

PHOTOGRAPHS

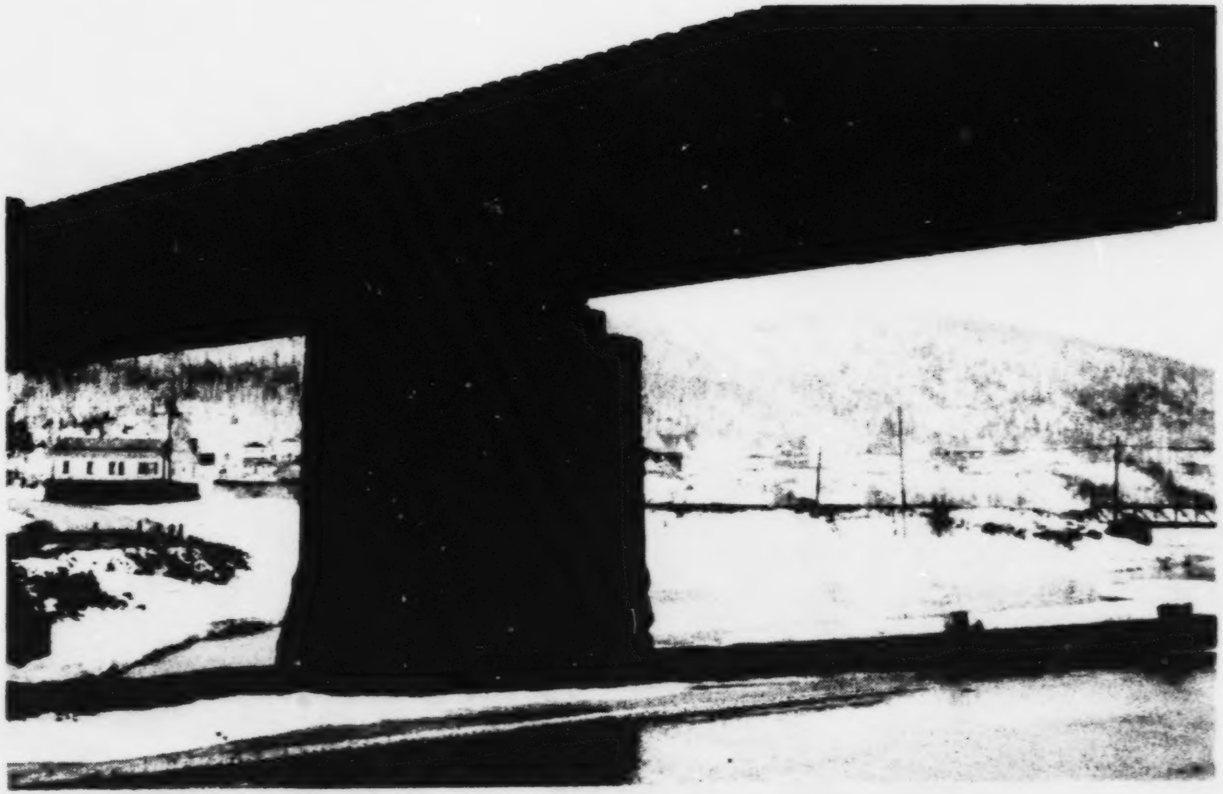


LOCATION: DOWNSTREAM OF BRIDGE AT RAMSEY ST.
STRUCTURE: B-1

- PHOTO NO. 1 -

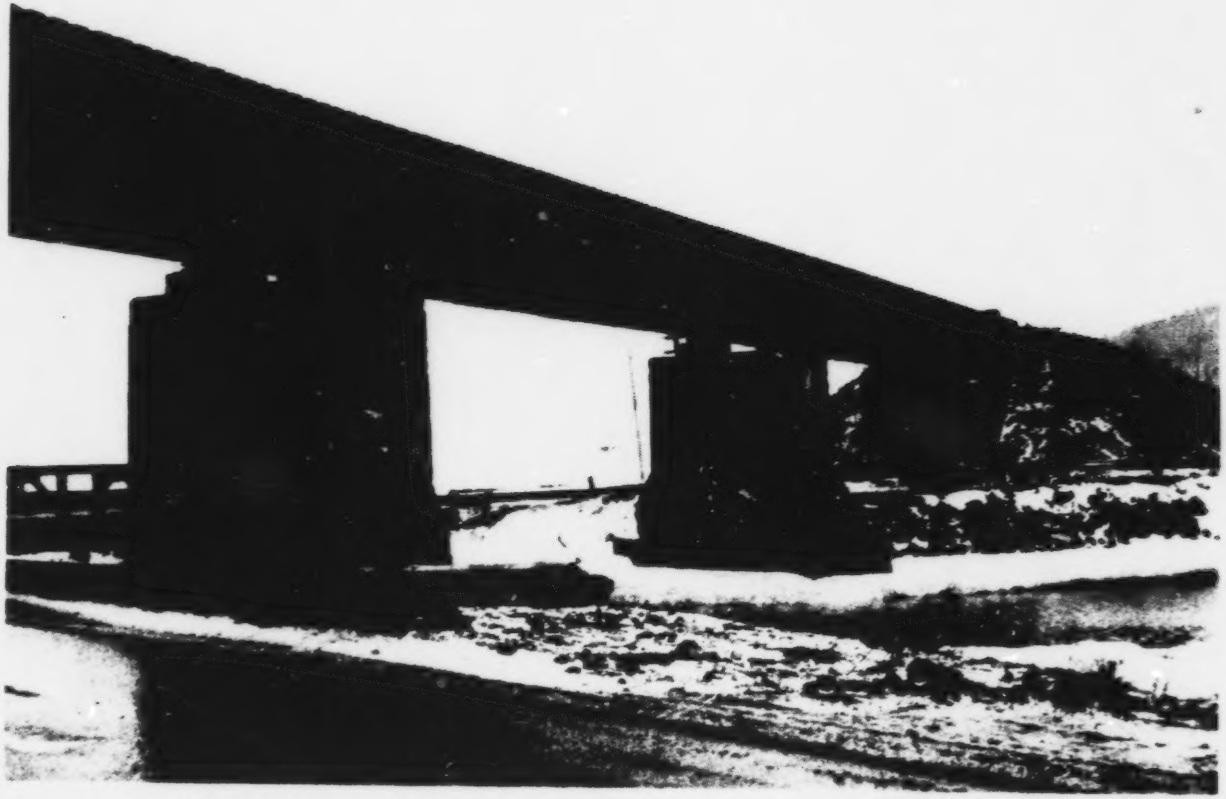
LOCATION: UPSTREAM SIDE OF BRIDGE AT RAMSEY ST.
STRUCTURE: B-1

- PHOTO NO. 2 -



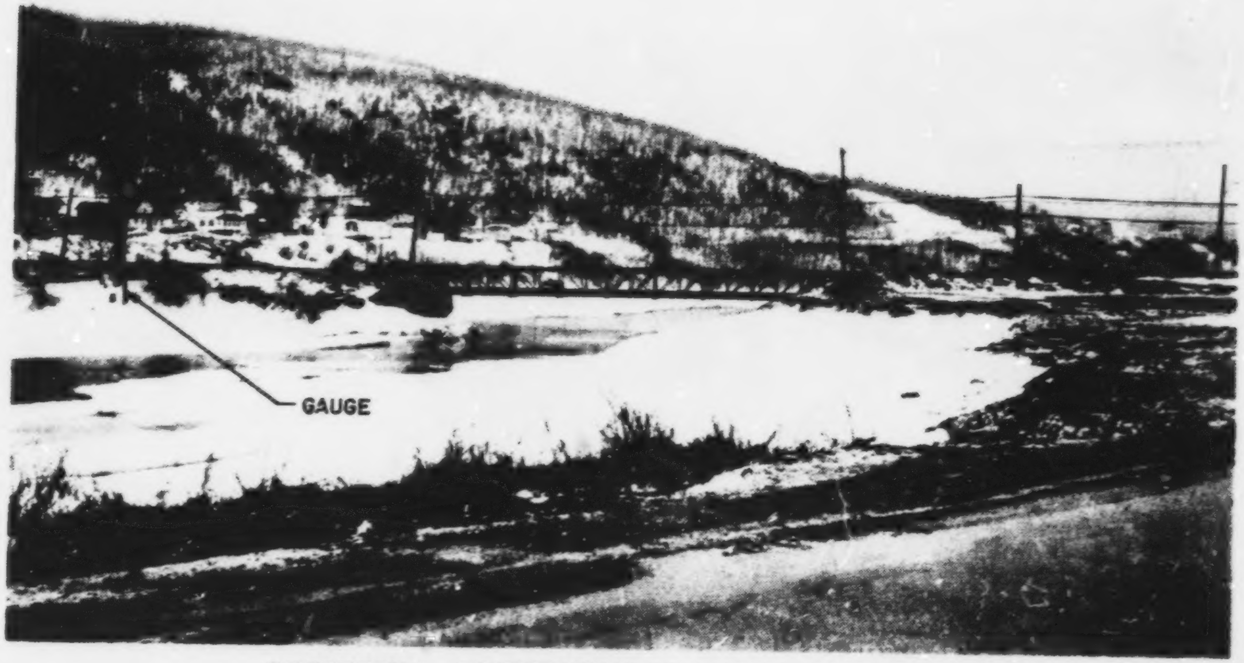
LOCATION: DOWNSTREAM OF RAILWAY BRIDGE
NEAR RAMSEY STREET
STRUCTURE: B-2

- PHOTO NO. 3 -



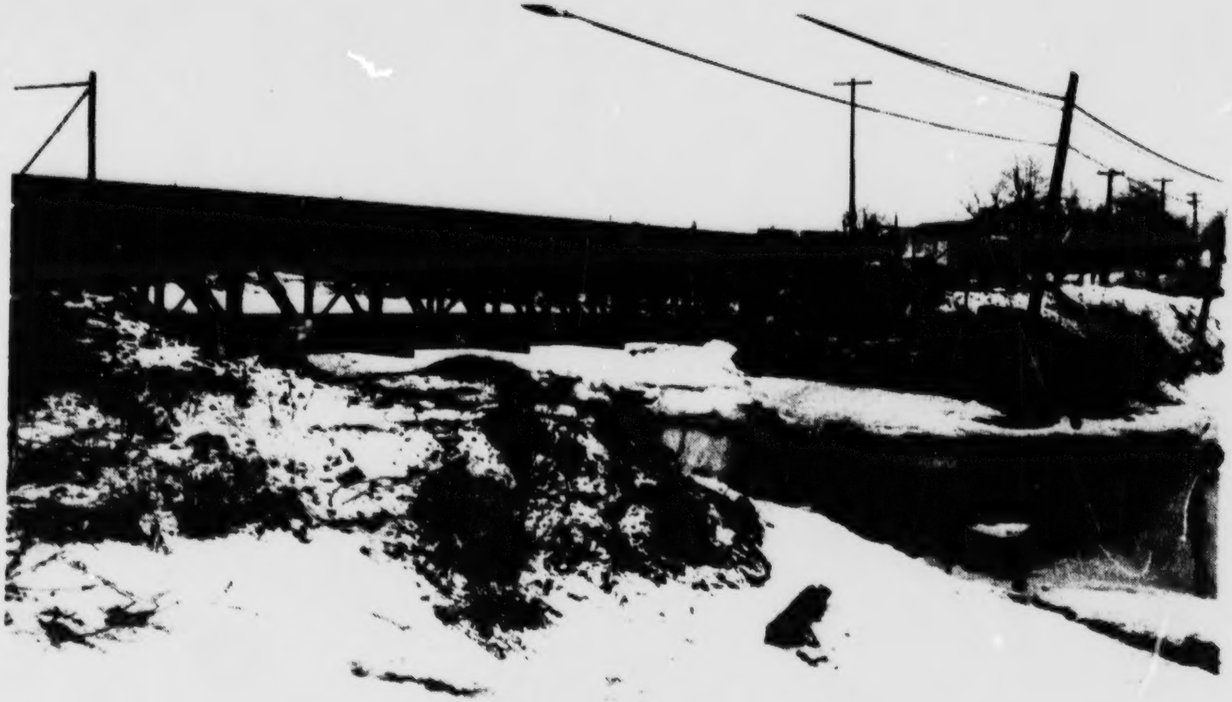
LOCATION: UPSTREAM SIDE OF RAILROAD BRIDGE
NEAR RAMSEY STREET
STRUCTURE: B-2

- PHOTO NO. 4 -



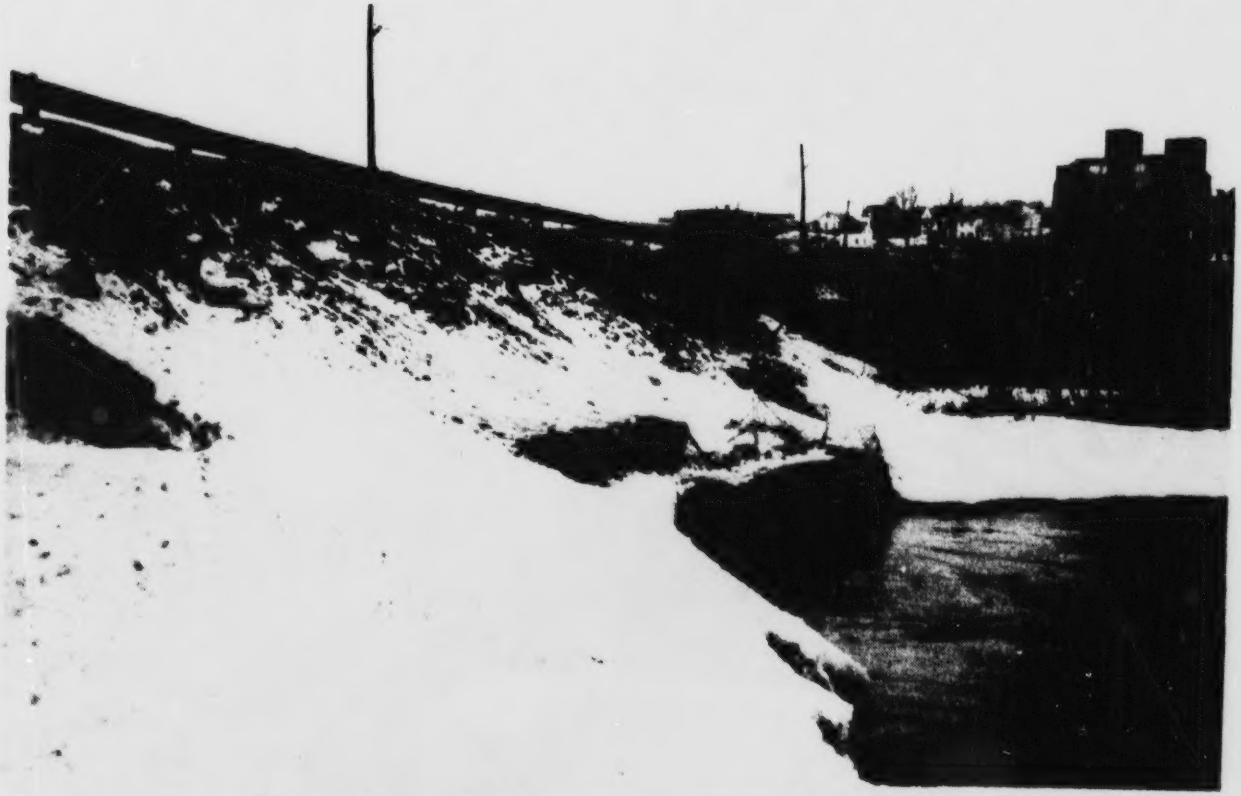
LOCATION: DOWNSTREAM OF TRUSS BRIDGE FOR
           WATERLINE NEAR RAMSEY STREET
STRUCTURE: B-3
GAUGE: NO. 1

- PHOTO NO. 5 -



LOCATION: UPSTREAM OF TRUSS BRIDGE FOR WATERLINE
NEAR RAMSEY STREET
STRUCTURE: B-3

- PHOTO NO. 6 -



LOCATION: DOWNSTREAM OF CULVERTS AT
           VILLAGE ROAD CROSSING
STRUCTURE: B-4

- PHOTO NO. 7 -

LOCATION: UPSTREAM SIDE OF CULVERTS AT
VILLAGE ROAD CROSSING
STRUCTURE: B-4
GAUGE: NO. 2 and NO. 3

- PHOTO NO. 8 -

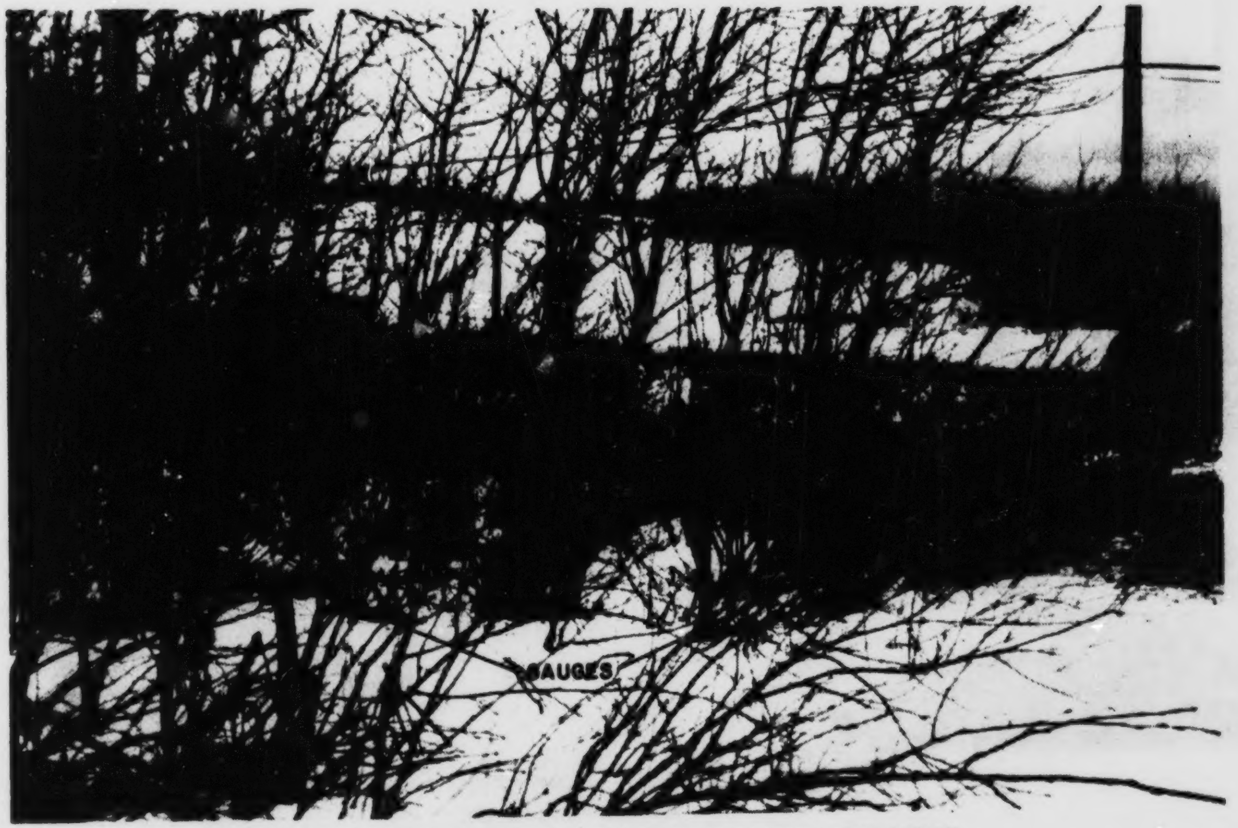
LOCATION: DOWNSTREAM SIDE OF BRIDGE AT
GALLANT DRIVE
STRUCTURE: B-5

- PHOTO NO. 9 -

LOCATION: DOWNSTREAM OF GALLANT DRIVE SHOWING GAUGE LOCATIONS

STRUCTURE: B-5
GAUGE: NO. 6

- PHOTO NO. 10 -



LOCATION: DOWNSTREAM OF GALLANT DRIVE SHOWING
GAUGE LOCATIONS
GAUGE: NO. 5 and NO. 6

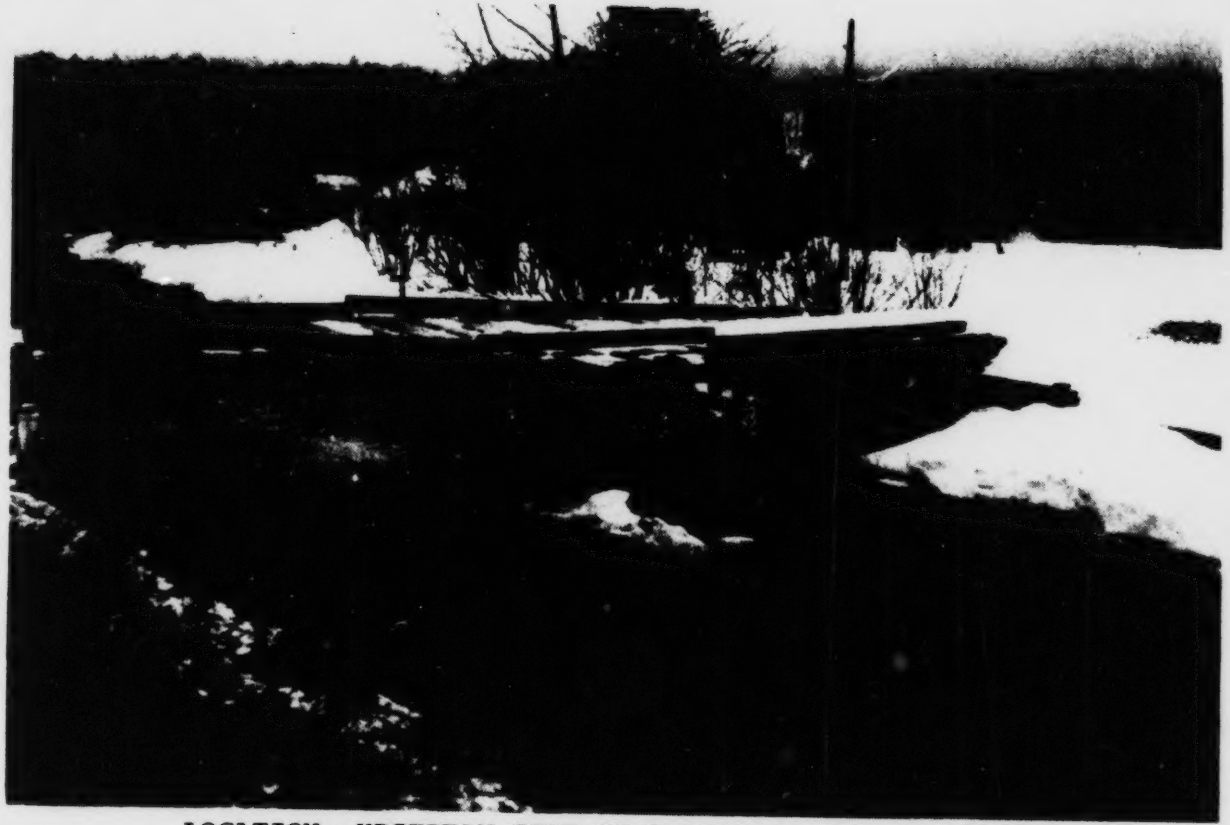
- PHOTO NO. 11 -

LOCATION: UPSTREAM SIDE OF BRIDGE AT
GALLANT DRIVE
STRUCTURE: B-5
GAUGE: NO. 4

- PHOTO NO. 12 -

LOCATION: DOWNSTREAM SIDE OF BRIDGE AT GERRARD STREET
STRUCTURE: B-6
GAUGE: NO. 7

- PHOTO NO. 13 -



LOCATION: UPSTREAM SIDE OF BRIDGE AT GERRARD STREET
STRUCTURE: B-6
GAUGE: NO. 7

- PHOTO NO. 14 -

LOCATION: DOWNSTREAM OF CULVERT AT DOVER STREET CROSSING

STRUCTURE: P-7

- PHOTO NO. 15 -

LOCATION:	DOWNSTREAM OF DOVER STREET CROSSING
SHOWING STAFF GAUGE
STRUCTURE:
GAUGE:	NO. 10

- PHOTO NO. 16 -

LOCATION: UPSTREAM SIDE OF CULVERT AT DOVER STREET
CROSSING
STRUCTURE: B-7
GAUGE: NO. 9

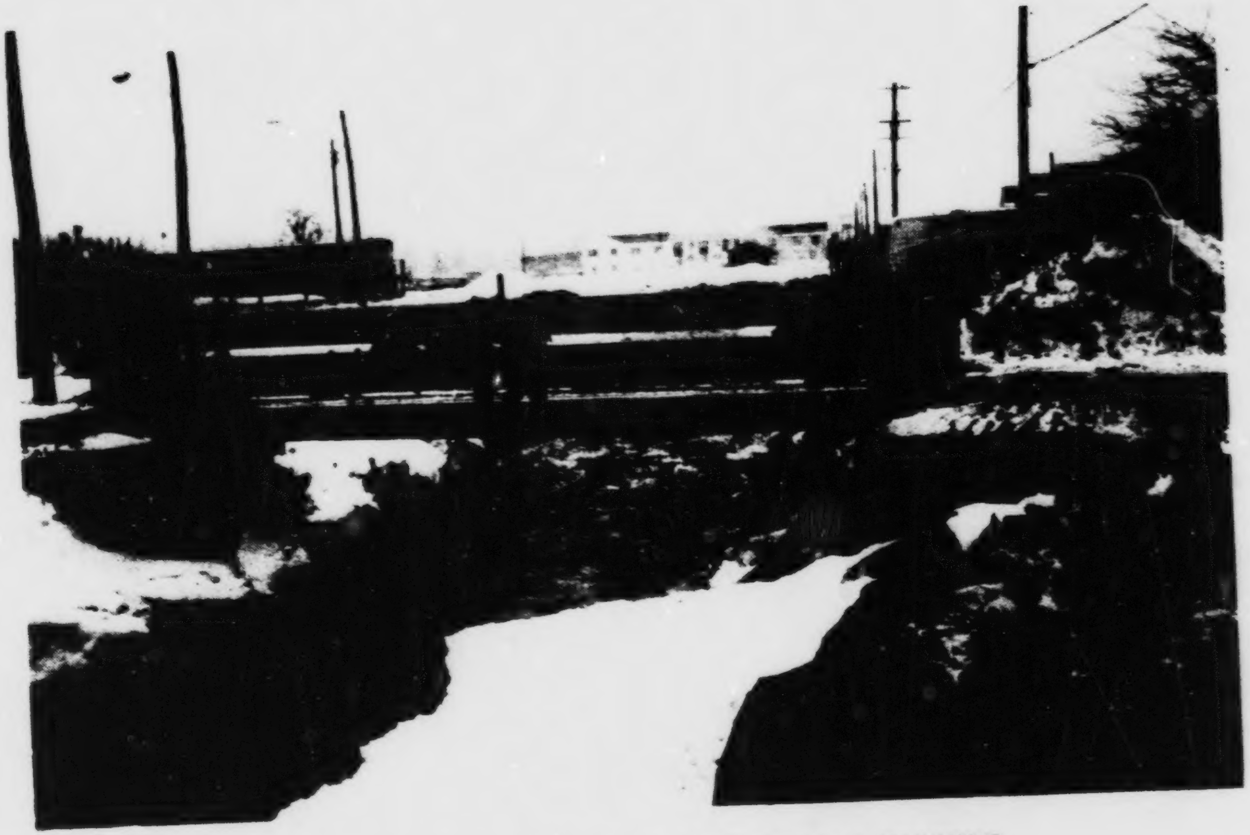
- PHOTO NO. 17 -

LOCATION: DOWNSTREAM OF CULVERT AT INTERSECTION OF PINE STREET AND ILA ROAD
STRUCTURE: B-8
GAUGE: NO. 11

- PHOTO NO. 18 -

LOCATION: UPSTREAM OF CULVERT AT INTERSECTION OF
PINE STREET AND ILA ROAD
STRUCTURE: B-8

- PHOTO NO. 19 -



LOCATION: DOWNSTREAM SIDE OF PEDESTRIAN WALKWAY
BRIDGE ON ALEXANDER STREET
STRUCTURE: B-9

- PHOTO NO. 20 -

LOCATION: UPSTREAM SIDE OF PEDESTRIAN WALKWAY BRIDGE
ON ALEXANDER STREET
STRUCTURE: B-9
GAUGE: NO. 12

- PHOTO NO. 21 -

LOCATION: UPSTREAM SIDE OF PEDESTRIAN WALKWAY BRIDGE ON ALEXANDER STREET
STRUCTURE: B-9
GAUGE: NO. 12 and NO. 13

- PHOTO NO. 22 -

LOCATION: DOWNSTREAM OF CULVERT AT DOVER STREET
CROSSING AT NEW BRUNSWICK ELECTRIC
POWER COMMISSION'S PROPERTY

STRUCTURE: B-10

- PHOTO NO. 23 -

LOCATION: UPSTREAM OF CULVERT AT DOVER STREET CROSSING AT NEW BRUNSWICK ELECTRIC POWER COMMISSION'S PROPERTY
STRUCTURE: B-10
GAUGE: NO. 14

- PHOTO NO. 24 -

LOCATION: UPSTREAM TOWARDS HIGHWAY NO. 11
ADJACENT N.B.E.P.C. PROPERTY
TAKEN FROM DOVER STREET

- PHOTO NO. 25 -

LOCATION: DOWNSTREAM OF CULVERT CROSSING AT
HIGHWAY NO. 11
STRUCTURE: B-11

- PHOTO NO. 26 -

LOCATION: UPSTREAM OF CULVERT CROSSING AT HIGHWAY NO. 11
STRUCTURE: B-11
GAUGE: NO. 15

- PHOTO NO. 27 -

LOCATION: HIGHWAY DITCH SOUTH SIDE OF HIGHWAY #11
LOOKING EAST OF STRUCTURE B-11
STRUCTURE: B-11
GAUGE: NO. 16

- PHOTO NO. 28 -

LOCATION: HIGHWAY 11 IN BACKGROUND. DOWNSTREAM (NORTH) OF WSC GAUGE LOCATION
STRUCTURE: -
GAUGE: NO. 17

- PHOTO NO. 29 -

LOCATION: DOWNSTREAM SIDE OF BRIDGE ON ENTRANCE ROAD INSIDE SUGARLOAF PARK
STRUCTURE: B-12

- PHOTO NO. 30 -

LOCATION: UPSTREAM SIDE OF BRIDGE ON ENTRANCE
ROAD INSIDE SUGARLOAF PARK
STRUCTURE: B-12

- PHOTO NO. 31 -

LOCATION: DOWNSTREAM OF WEIRS INSIDE SUGARLOAF PARK

- PHOTO NO. 32 -

LOCATION: DOWNSTREAM OF CULVERT CROSSING HWY. 270
AT ENTRANCE OF WALKER BROOK INTO
SUGARLOAF PARK
STRUCTURE: B-13

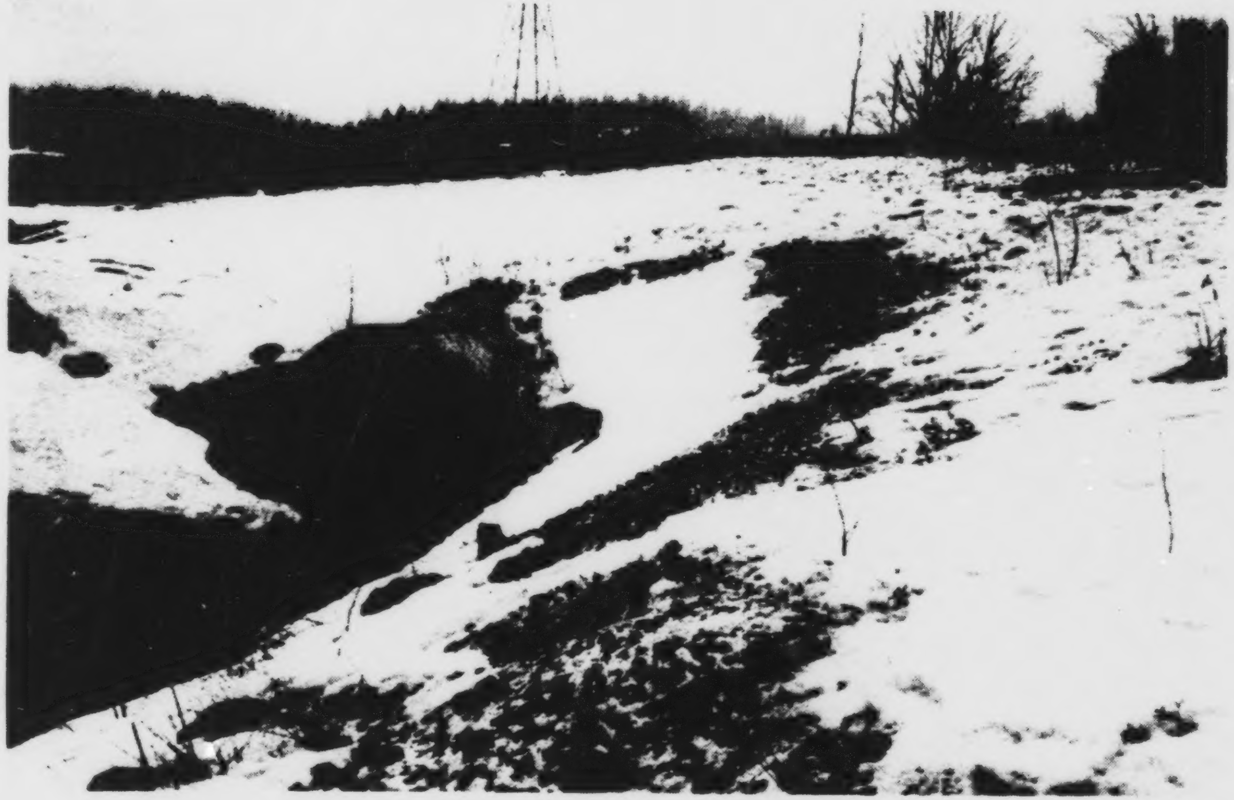
- PHOTO NO. 33 -

LOCATION: DOWNSTREAM OF SNOWMOBILE CULVERT
UNDER HWY. 270 AT ENTRANCE TO
SUGARLOAF PARK
STRUCTURE: B-13

- PHOTO NO. 34 -

LOCATION: UPSTREAM OF SNOWMOBILE CULVERT UNDER
HWY. 270 AT ENTRANCE TO SUGARLOAF PARK
STRUCTURE: B-13

- PHOTO NO. 35 -



LOCATION: UPSTREAM OF CULVERT UNDER HWY. 270
AT ENTRANCE OF WALKER BROOK INTO
SUGARLOAF PARK
STRUCTURE: B-13

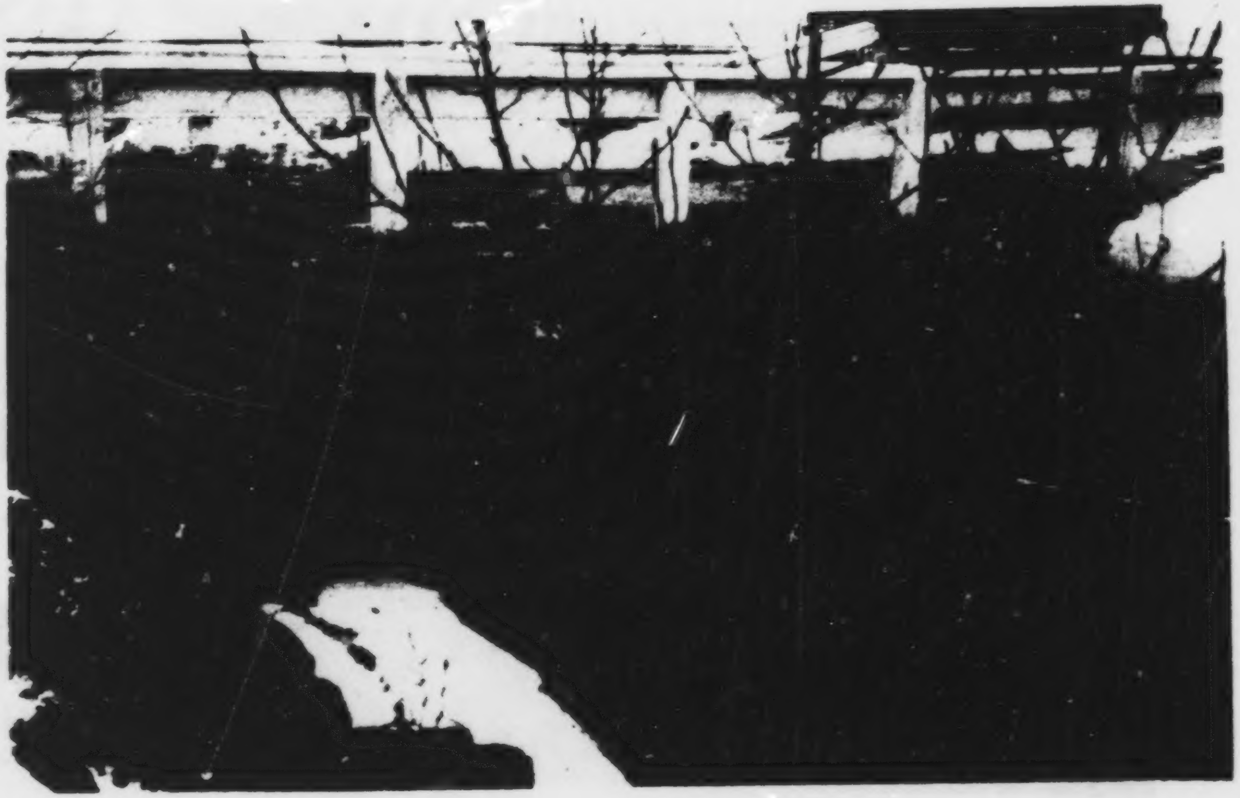
- PHOTO NO. 36 -

LOCATION: FIRST BRIDGE AND HOUSE ABOVE SUGARLOAF
PARK ALONG HWY. 270
STRUCTURE: B-14

- PHOTO NO. 37 -

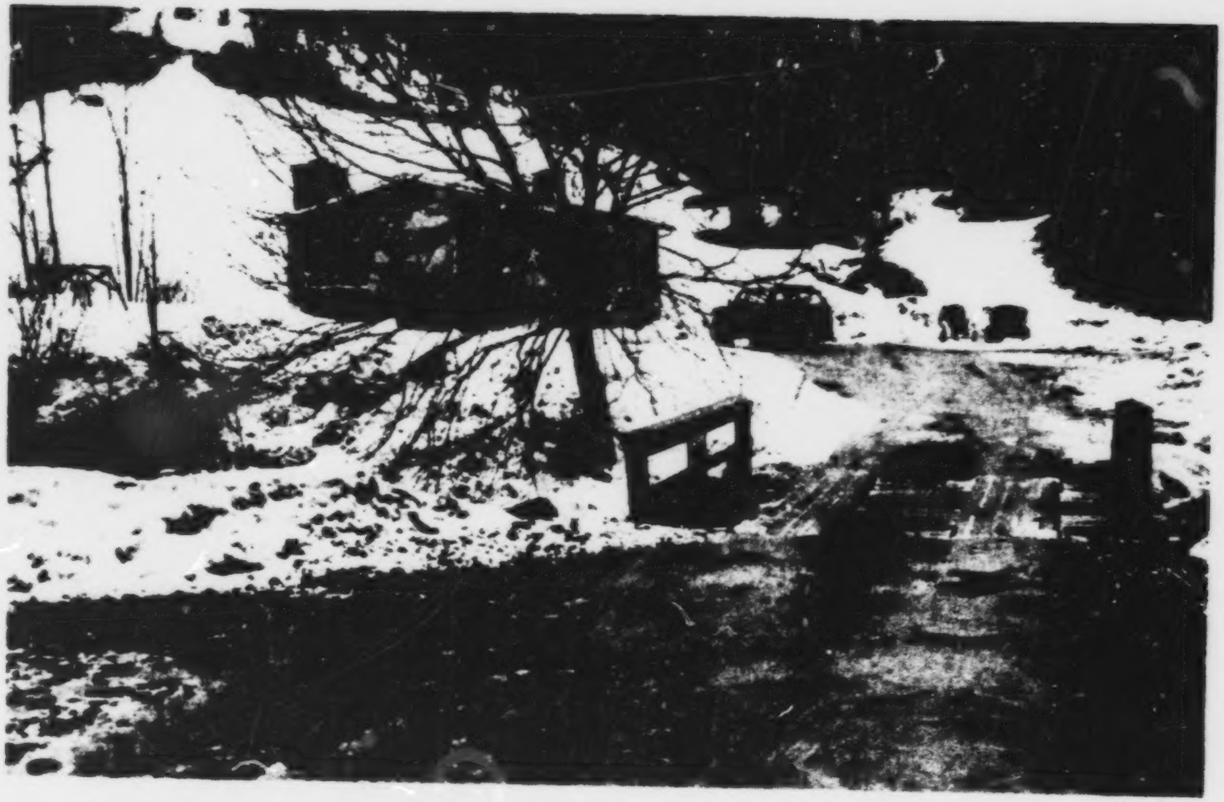
LOCATION: DOWNSTREAM OF BRIDGE AT FIRST HOUSE
ABOVE SUGARLOAF PARK
STRUCTURE: B-14

- PHOTO NO. 38 -



LOCATION: UPSTREAM OF BRIDGE AT FIRST HOUSE
ABOVE SUGARLOAF PARK
STRUCTURE: B-14

- PHOTO NO. 39 -



LOCATION: HIGHWAY NO. 270 AT GAUGING STATION
NO. 19
STRUCTURE: B-15

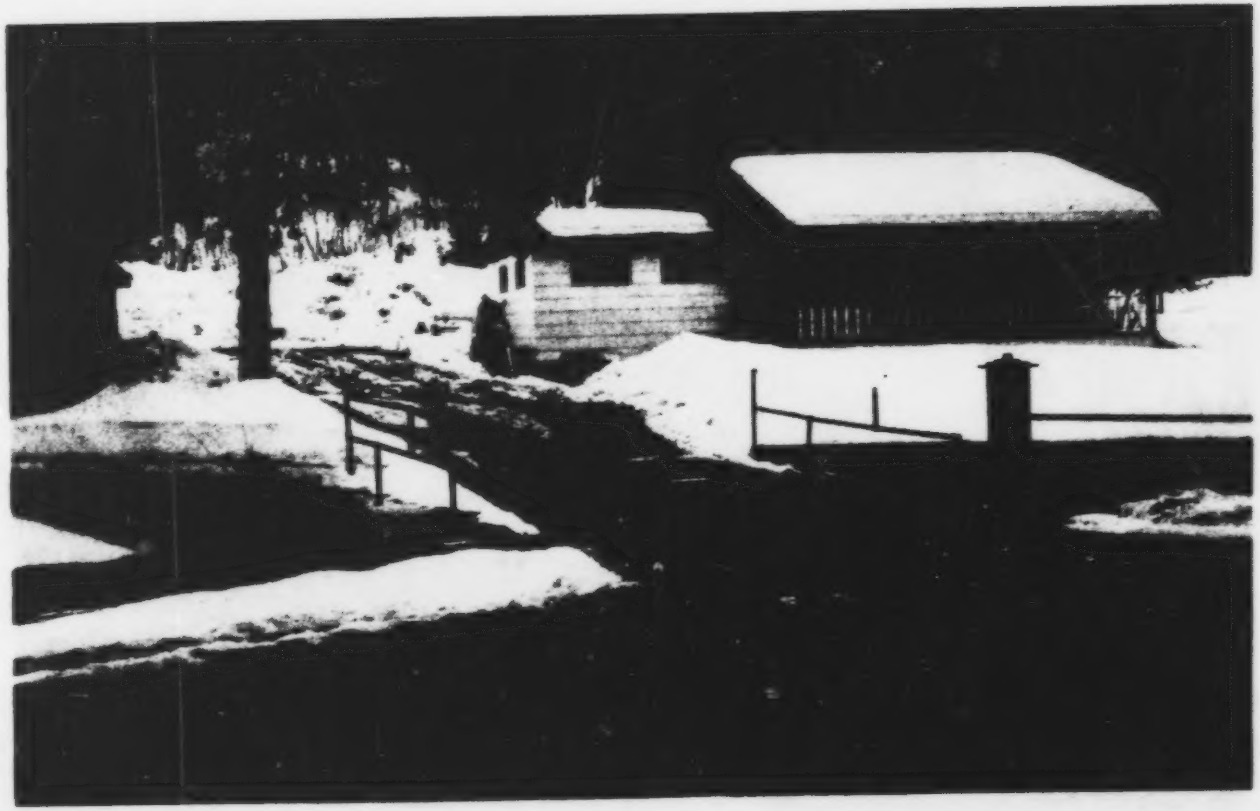
- PHOTO NO. 40 -

LOCATION: DOWNSTREAM OF BRIDGE AT GAUGING STATION
           NO. 19, HWY. 270
STRUCTURE: B-15

- PHOTO NO. 41 -

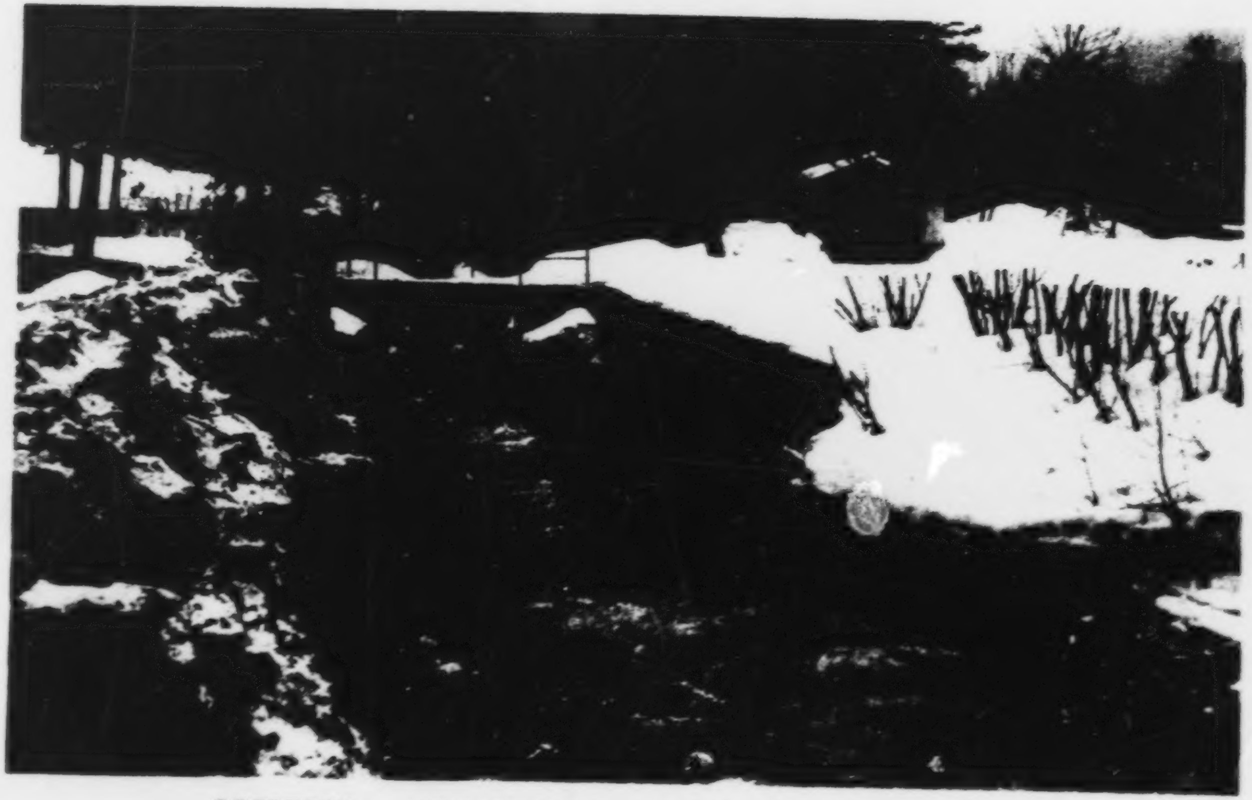
LOCATION: UPSTREAM OF BRIDGE AT GAUGING STATION
NO. 19, HWY. 270
STRUCTURE: B-15
GAUGE: NO. 19

- PHOTO NO. 42 -



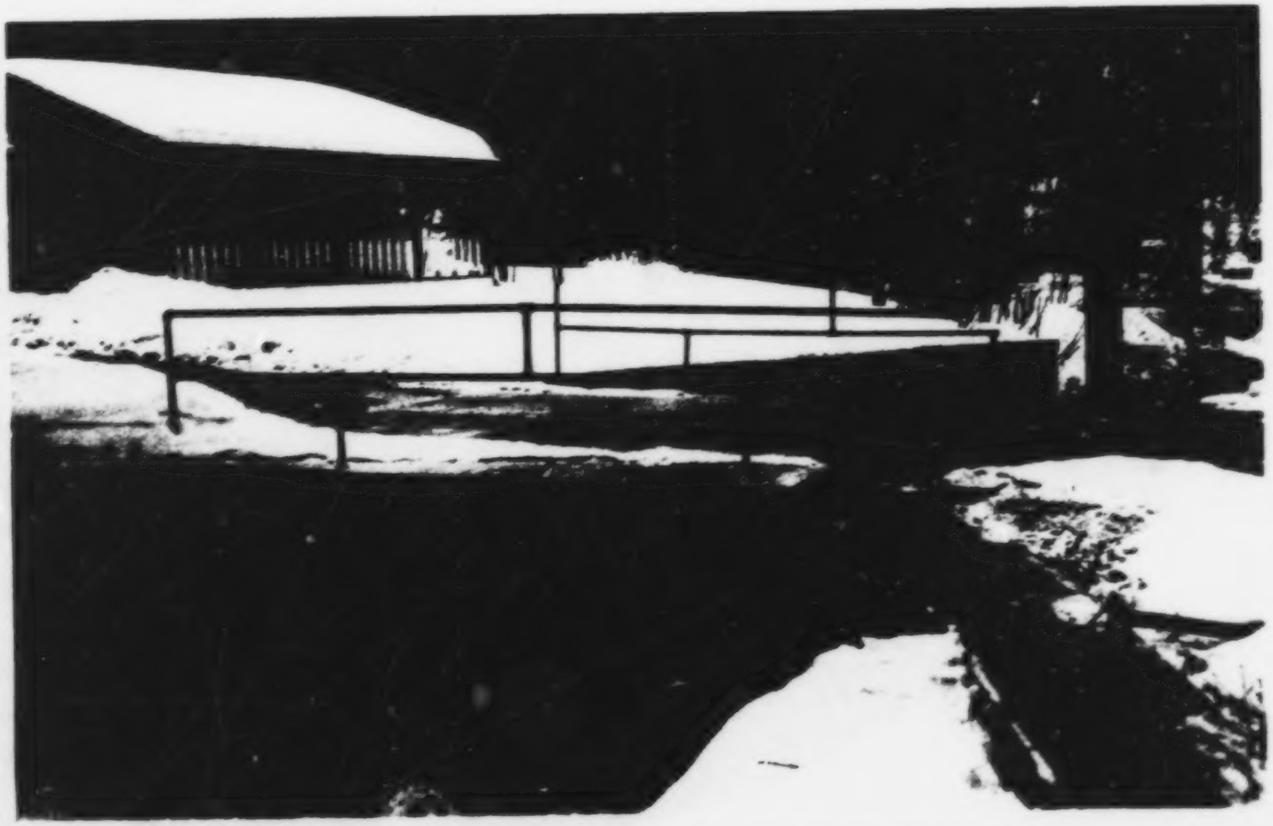
LOCATION: FIRST BRIDGE AND HOUSE ABOVE GAUGING
STATION 19
STRUCTURE: B-16

- PHOTO NO. 43 -



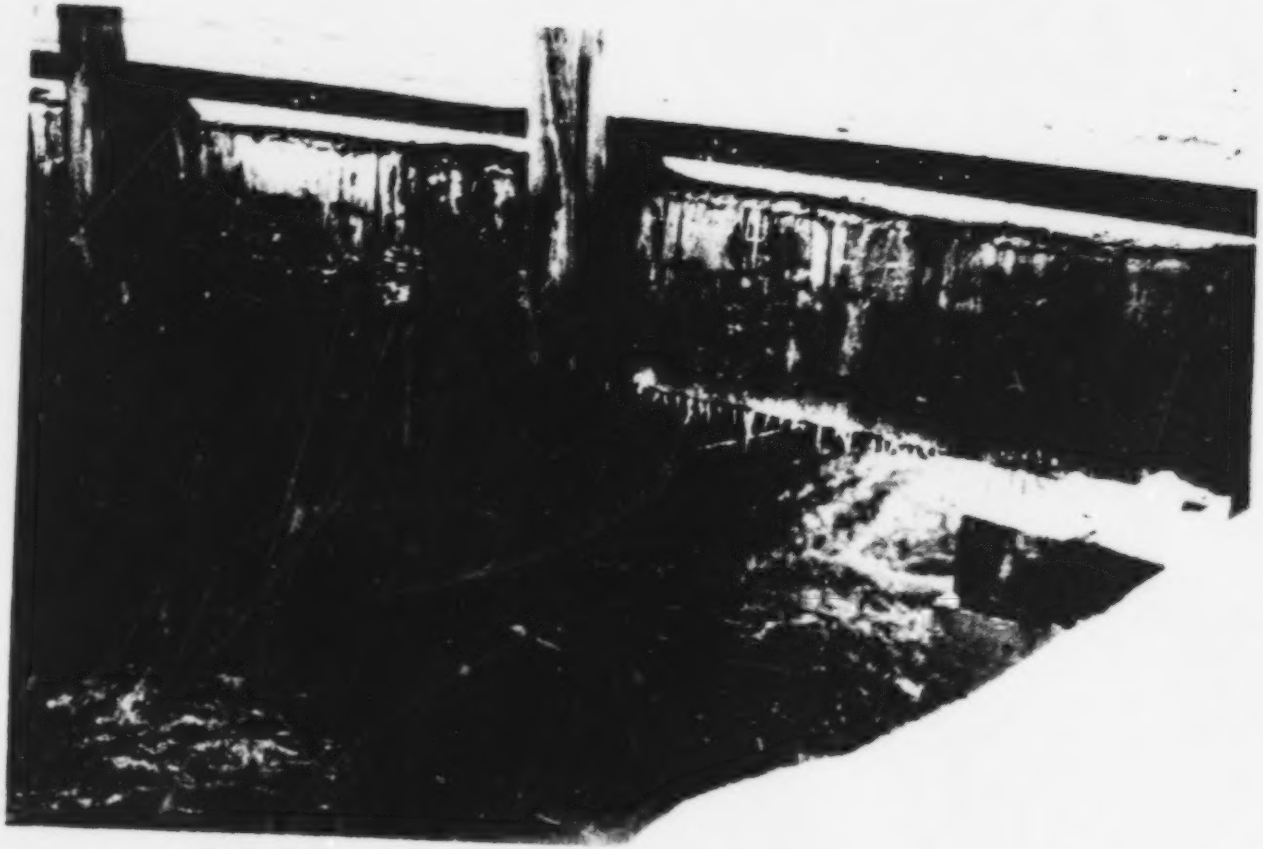
LOCATION: DOWNSTREAM OF BRIDGE AT FIRST HOUSE
ABOVE GAUGING STATION 19
STRUCTURE: B-16

- PHOTO NO. 44 -



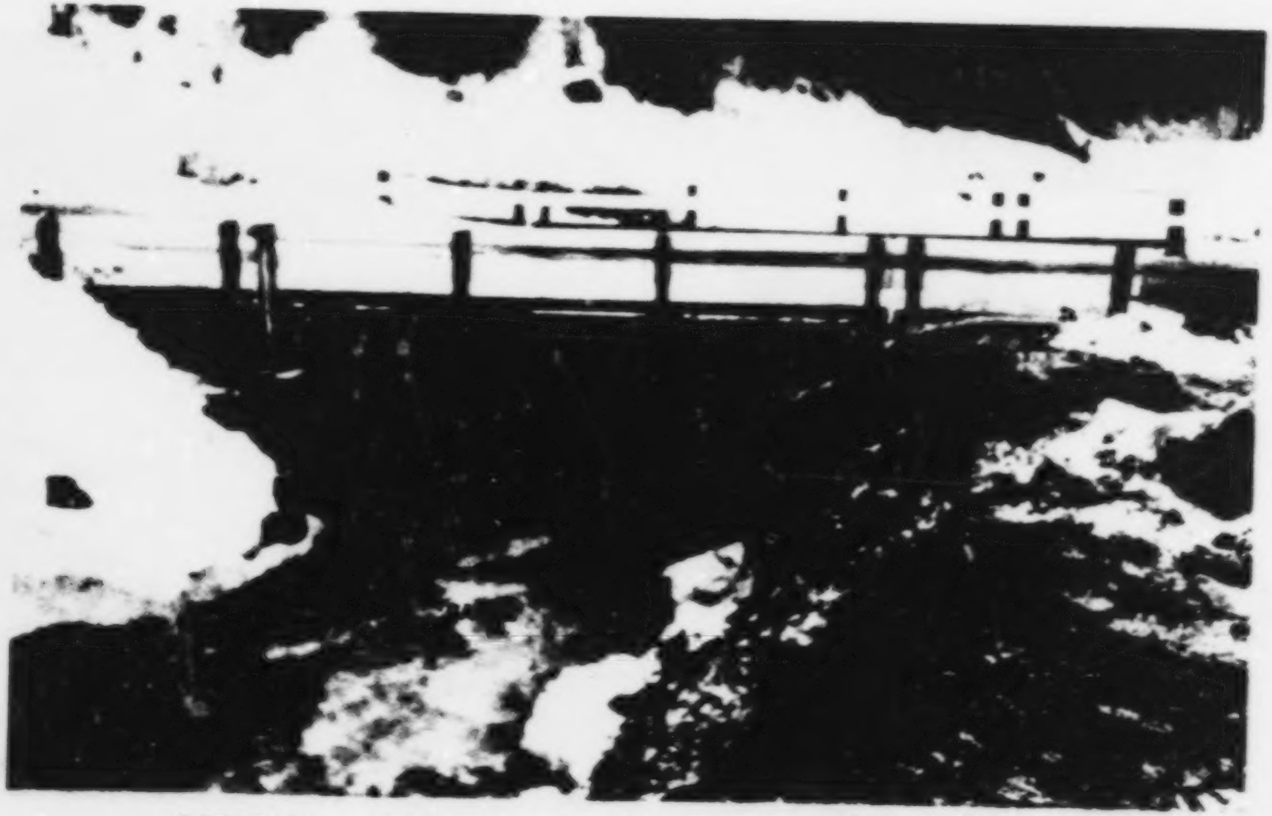
LOCATION: UPSTREAM OF BRIDGE AT FIRST HOUSE
ABOVE GAUGING STATION 19
STRUCTURE: B-16

- PHOTO NO. 45 -



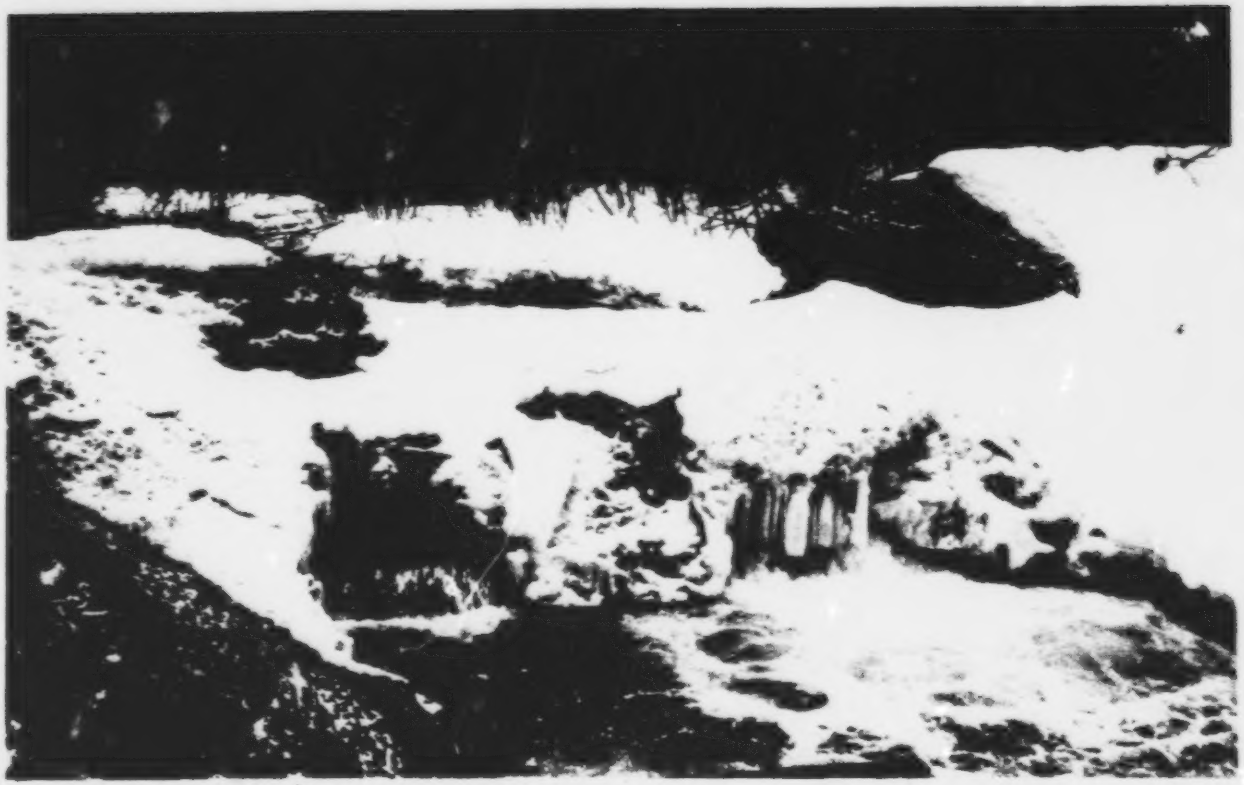
LOCATION: DOWNSTREAM OF BRIDGE AT BRAMHAM
GULCH ROAD
STRUCTURE: B-17

- PHOTO NO. 46 -



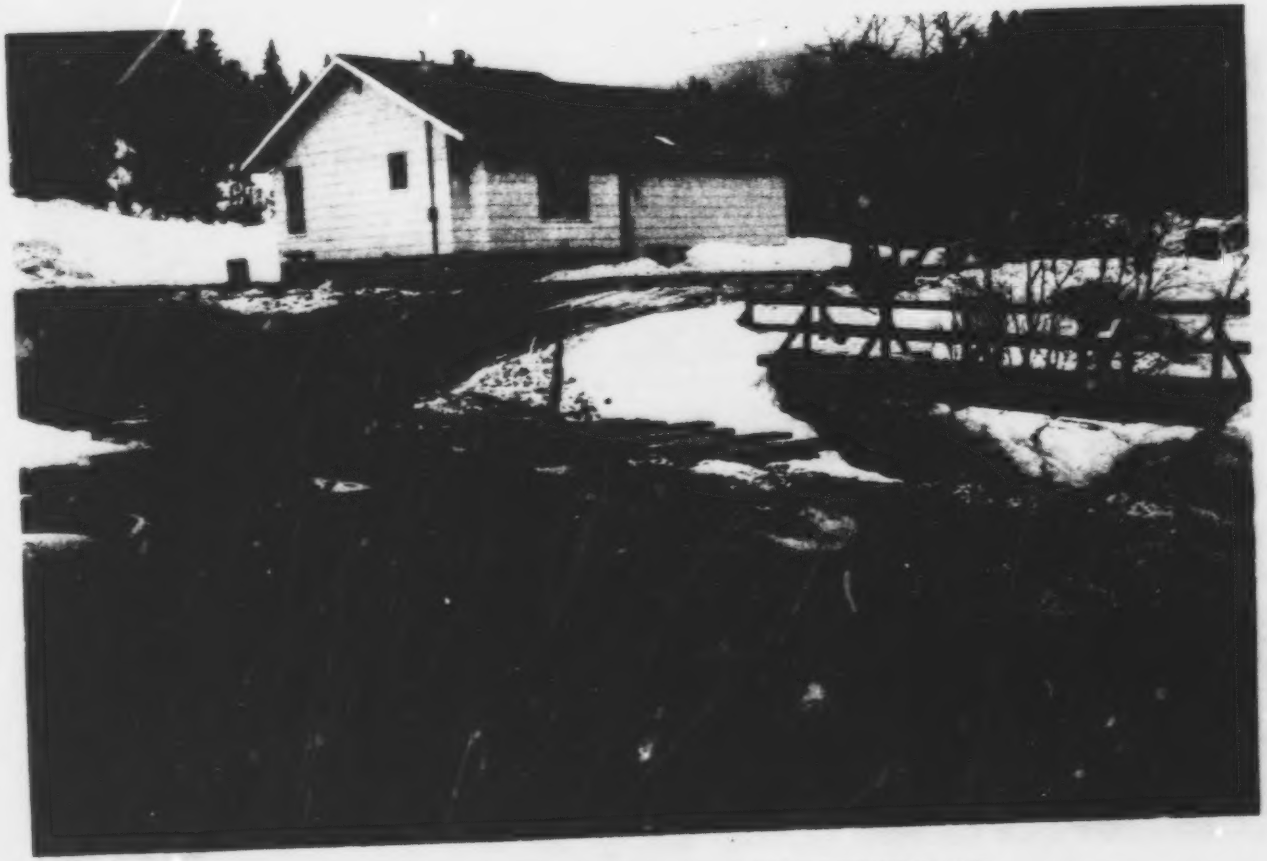
LOCATION: UPSTREAM OF BRIDGE AT BRAMHAM GULCH
ROAD
STRUCTURE: B-17
GAUGE: NO. 20

- PHOTO NO. 47 -



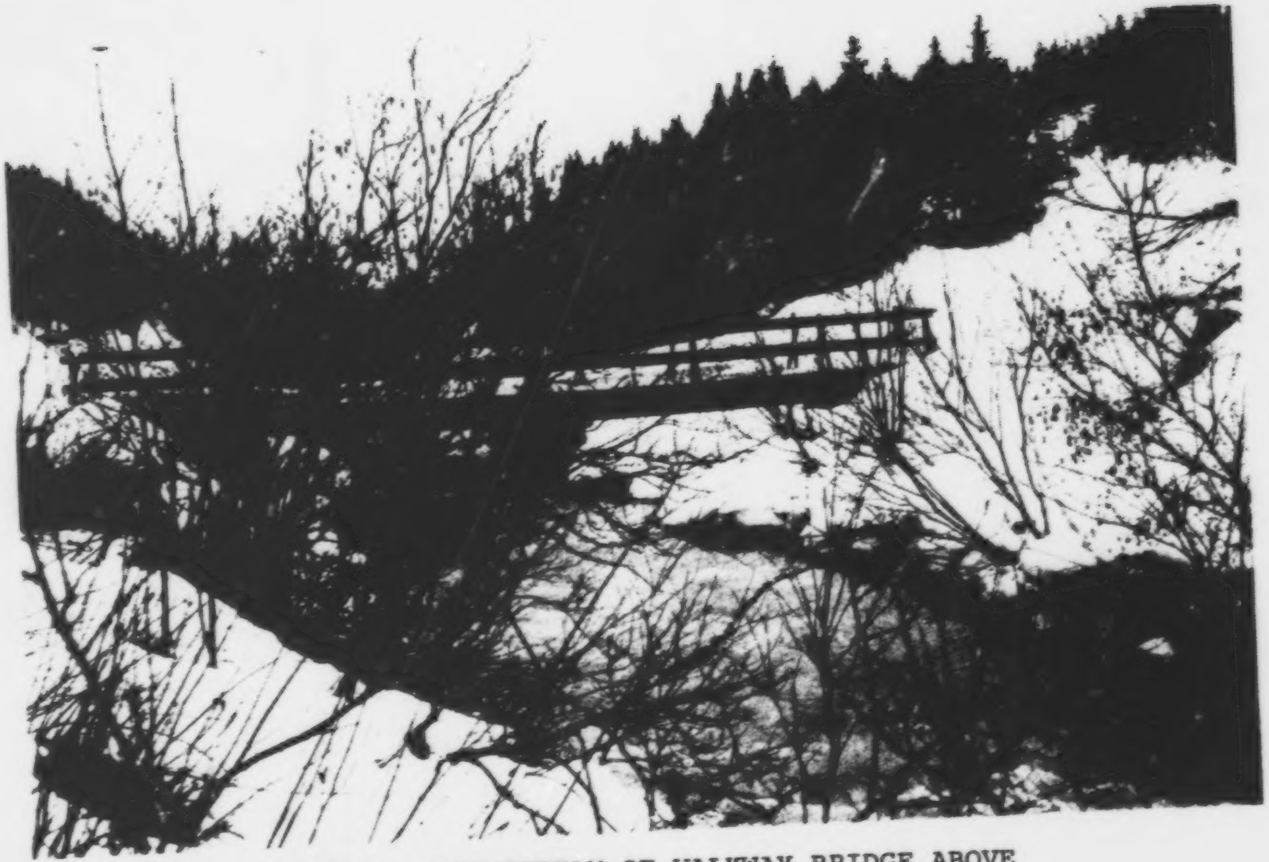
LOCATION: DOWNSTREAM OF OLD DAM IMMEDIATELY ABOVE
BRAMHAM GULCH ROAD
STRUCTURE: B-18

- PHOTO NO. 48 -



LOCATION: DRIVEWAY AND WALKWAY BRIDGE AT
FIRST HOUSE ABOVE DAM
STRUCTURE: B-19 and B-20

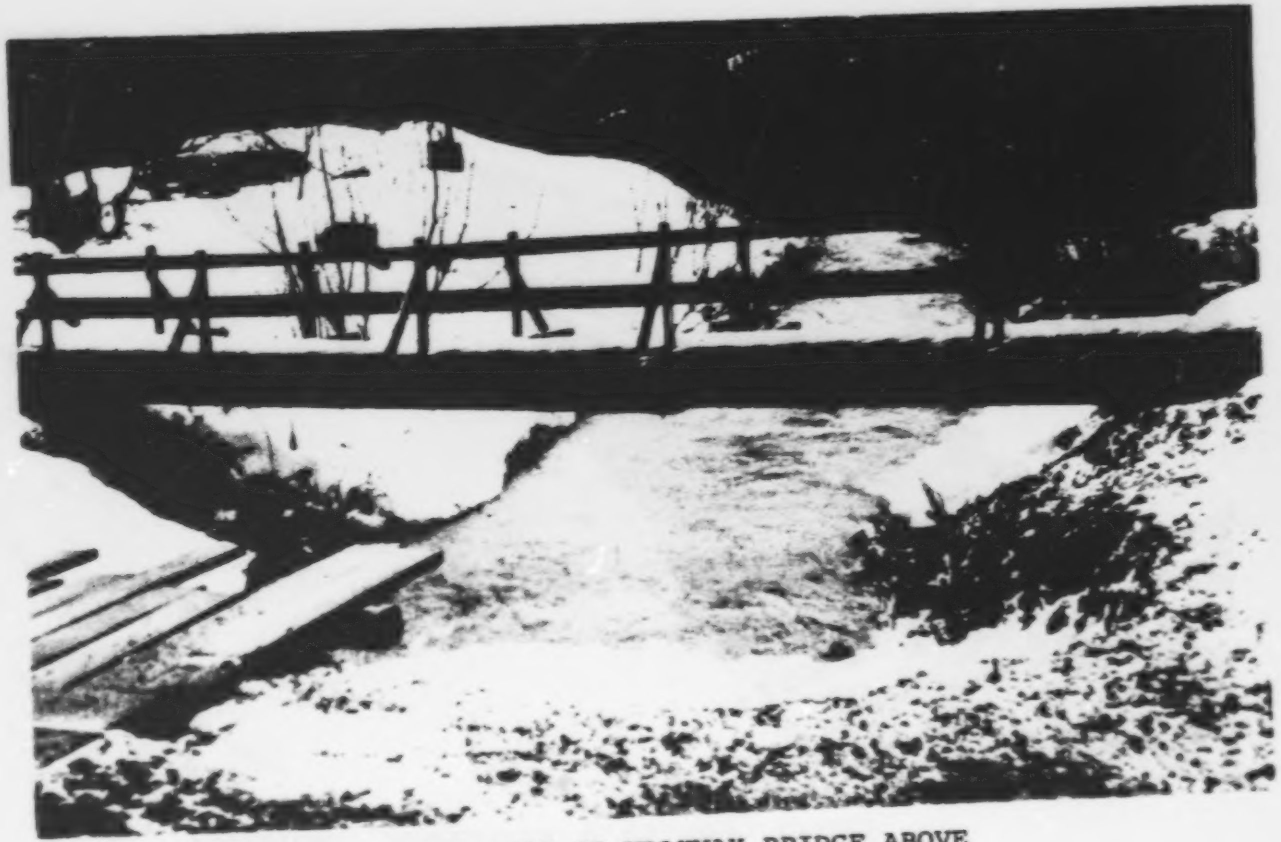
- PHOTO NO. 49 -



LOCATION: DOWNSTREAM OF WALKWAY BRIDGE ABOVE DAM

STRUCTURE: B-19

- PHOTO NO. 50 -



LOCATION: UPSTREAM OF WALKWAY BRIDGE ABOVE
DAM
STRUCTURE: B-19

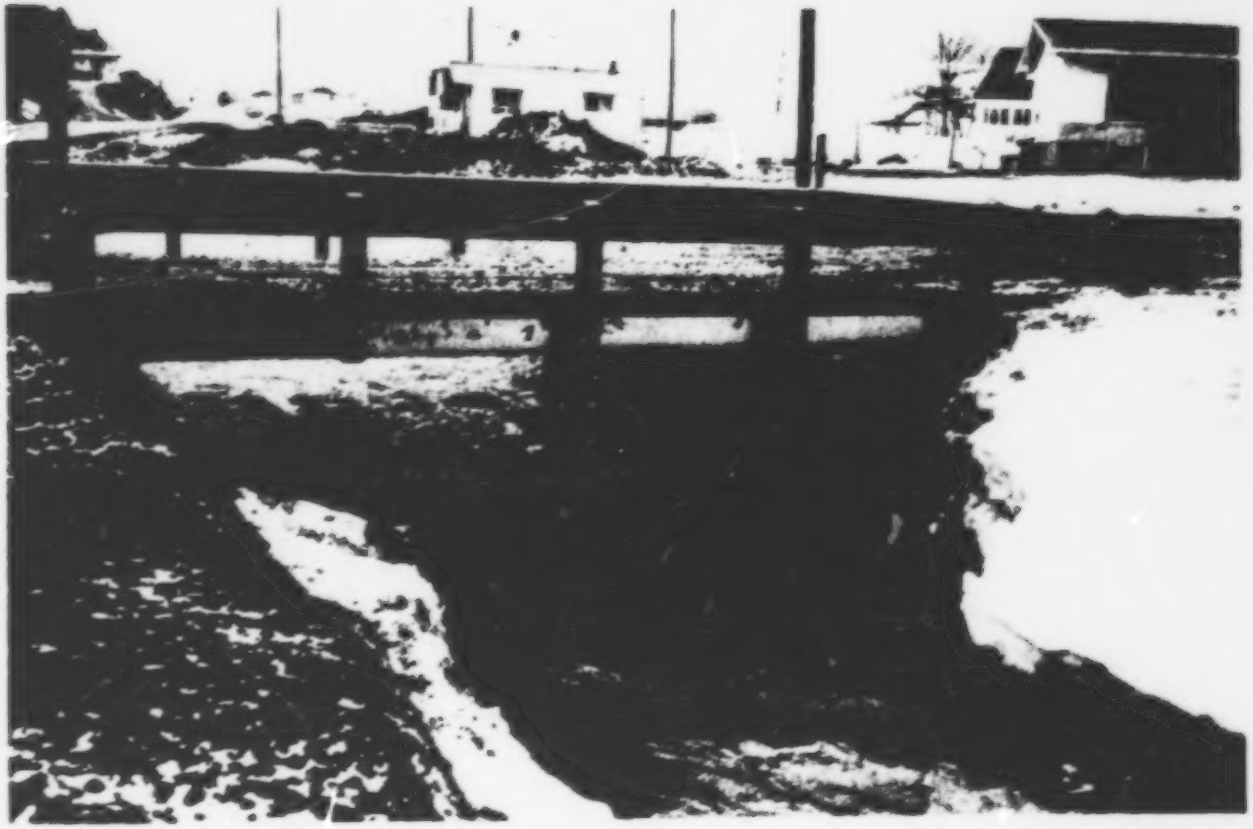
- PHOTO NO. 51 -

LOCATION: DOWNSTREAM OF DRIVEWAY BRIDGE
ABOVE DAM
STRUCTURE: B-20

- PHOTO NO. 52 -

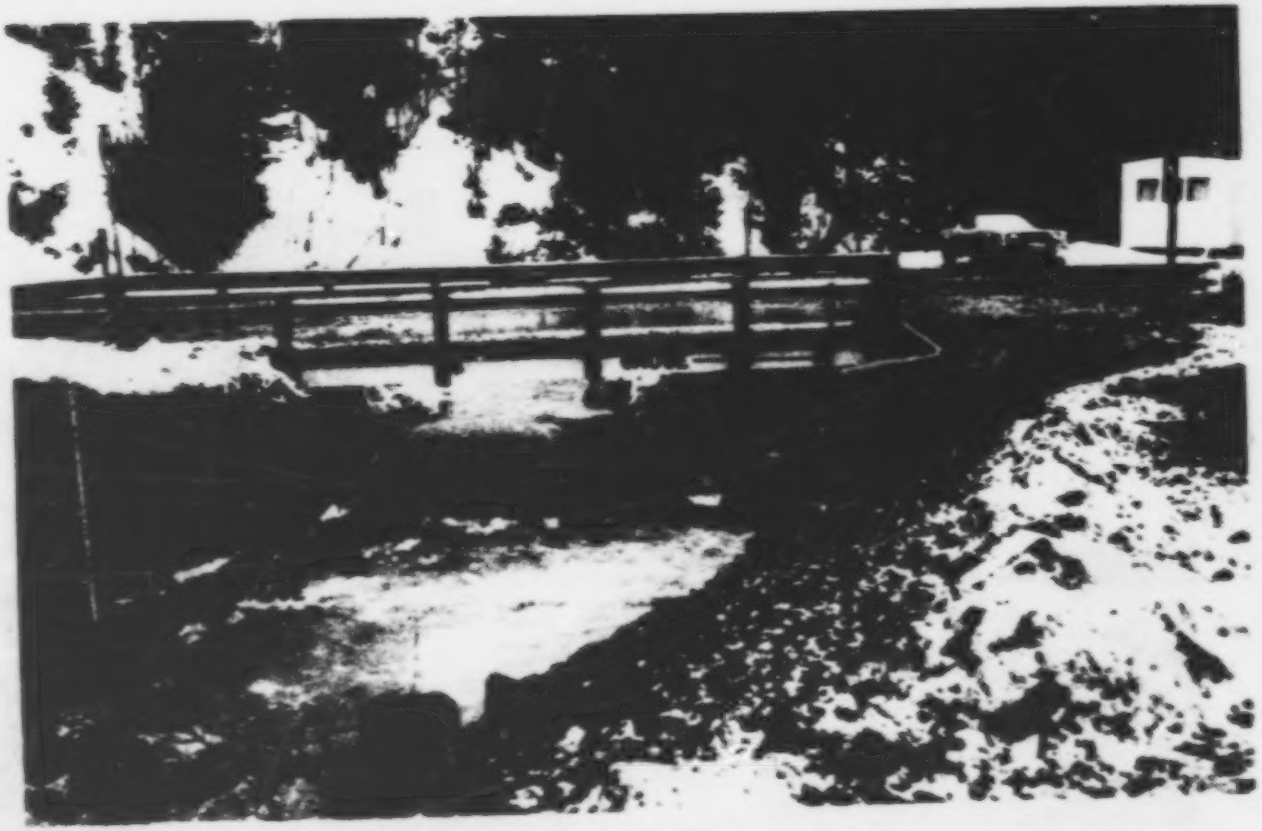
LOCATION: UPSTREAM OF DRIVEWAY BRIDGE ABOVE
DAM
STRUCTURE: B-20

- PHOTO NO. 53 -



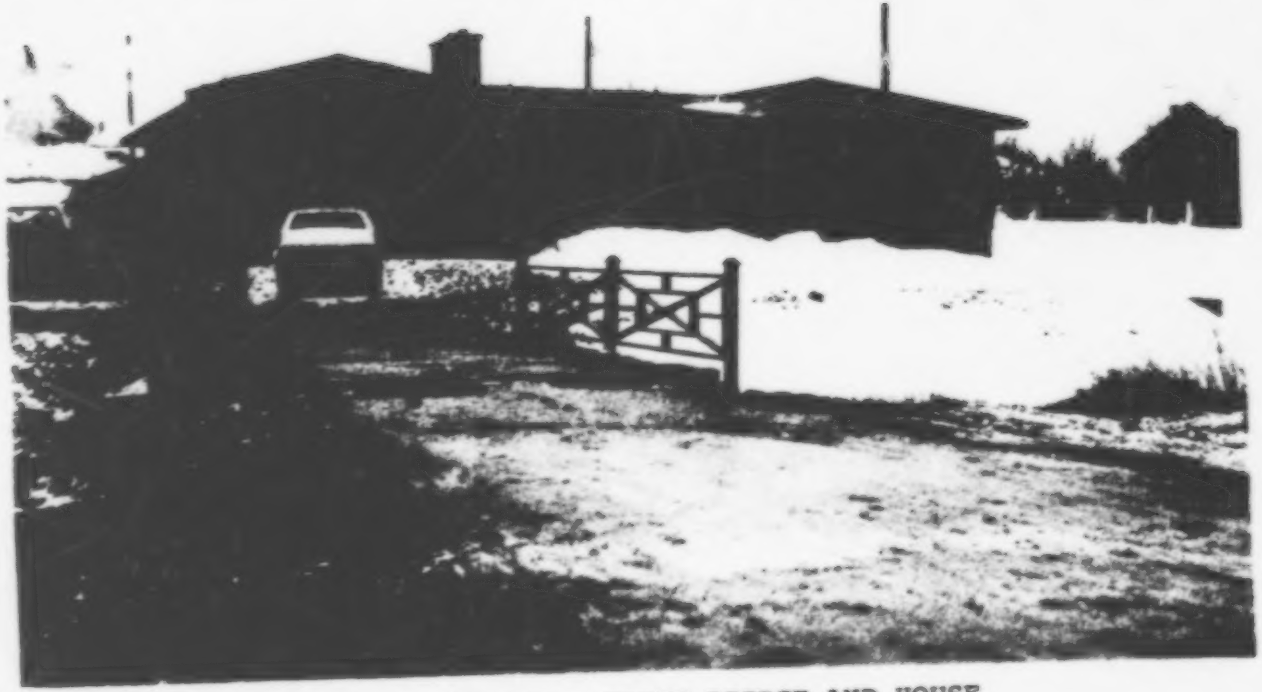
LOCATION: DOWNSTREAM OF BRIDGE ON ROAD TO
MALAUZE IN VAL D'AMOUR AT INTERSECTION
OF HWY. 270
STRUCTURE: B-21

- PHOTO NO. 54 -



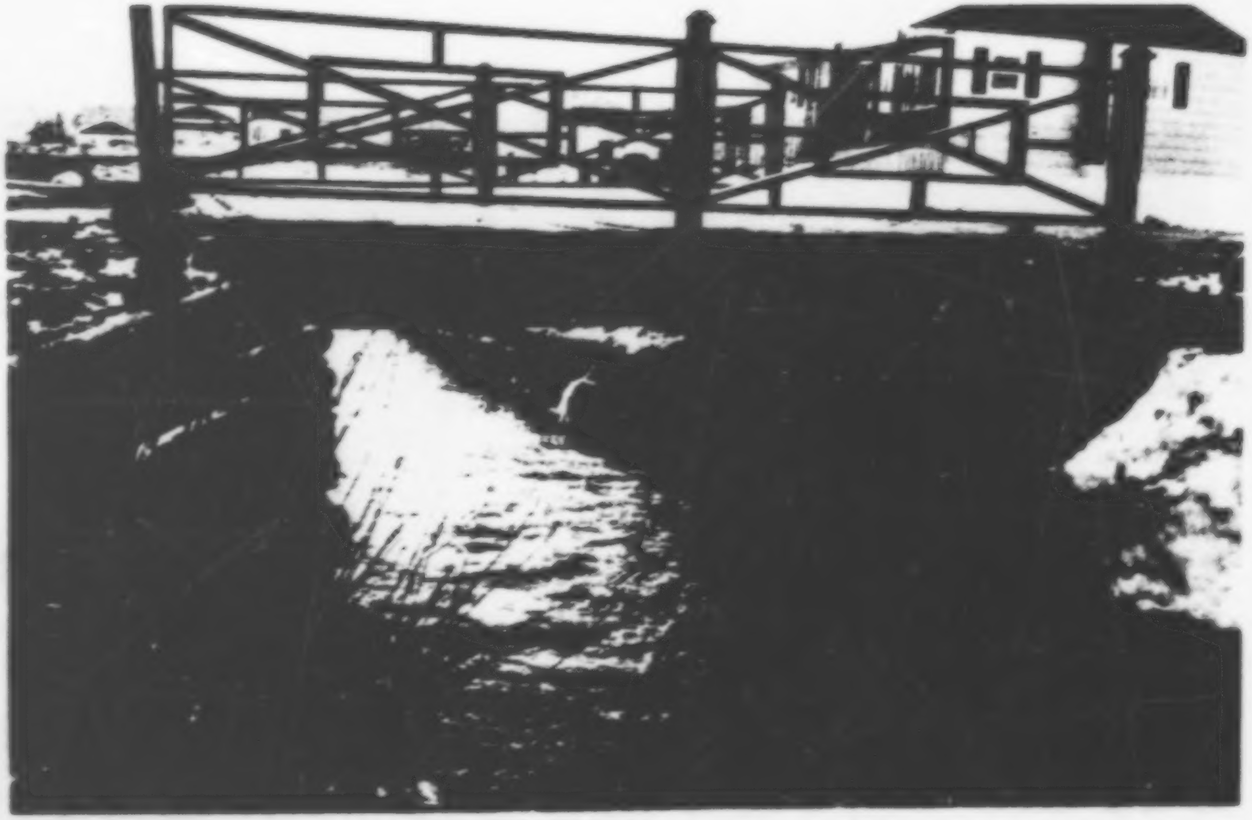
LOCATION: UPSTREAM OF BRIDGE ON ROAD TO MALAUZE
AT INTERSECTION OF HWY. 270
STRUCTURE: B-21
GAUGE: NO. 21 and NO. 22

- PHOTO NO. 55 -



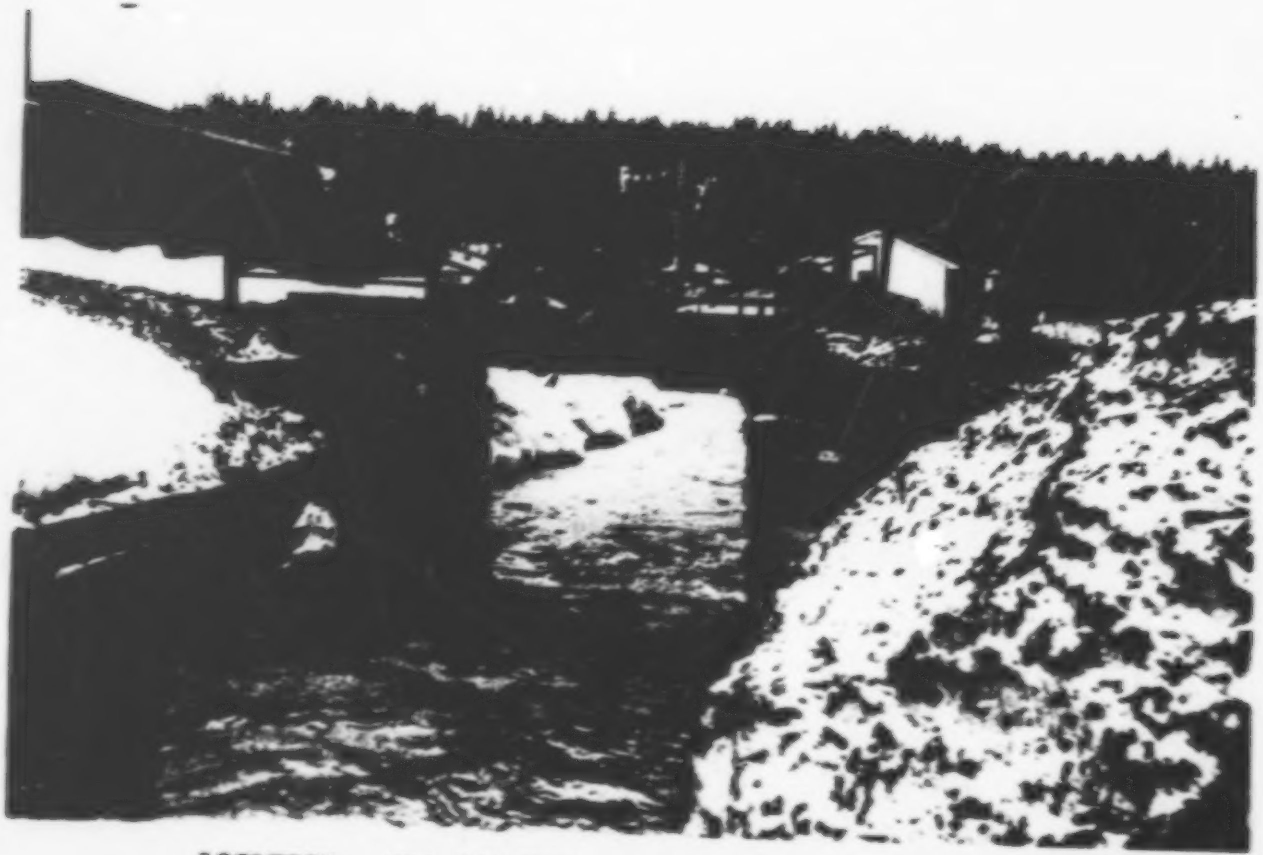
LOCATION: VAL D'AMOUR - FIRST BRIDGE AND HOUSE
ABOVE ROAD TO MALAUZE ALONG HWY. 270
STRUCTURE: B-22

- PHOTO NO. 56 -



LOCATION: VAL D'AMOUR - DOWNSTREAM OF FIRST
           BRIDGE ABOVE ROAD TO MALAUZE
STRUCTURE: B-22

- PHOTO NO. 57 -



LOCATION: VAL D'AMOUR - UPSTREAM OF FIRST BRIDGE
ABOVE ROAD TO MALAUZE
STRUCTURE: B-22

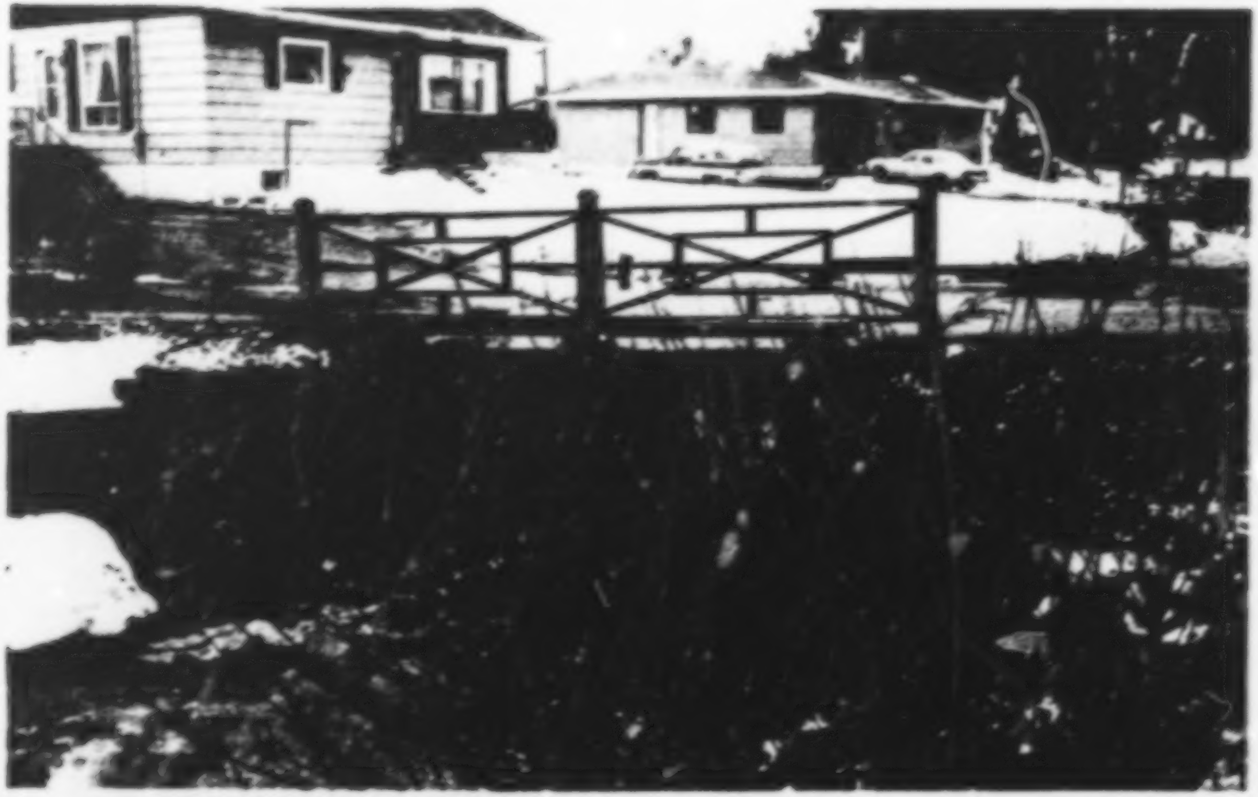
- PHOTO NO. 58 -

LOCATION: VAL D'AMOUR - SECOND BRIDGE AND HOUSE
ABOVE ROAD TO MALAUZE
STRUCTURE: B-23

- PHOTO NO. 59 -

LOCATION: VAL D'AMOUR - DOWNSTREAM OF SECOND BRIDGE ABOVE ROAD TO MALAUZE
STRUCTURE: B-23

- PHOTO NO. 60 -



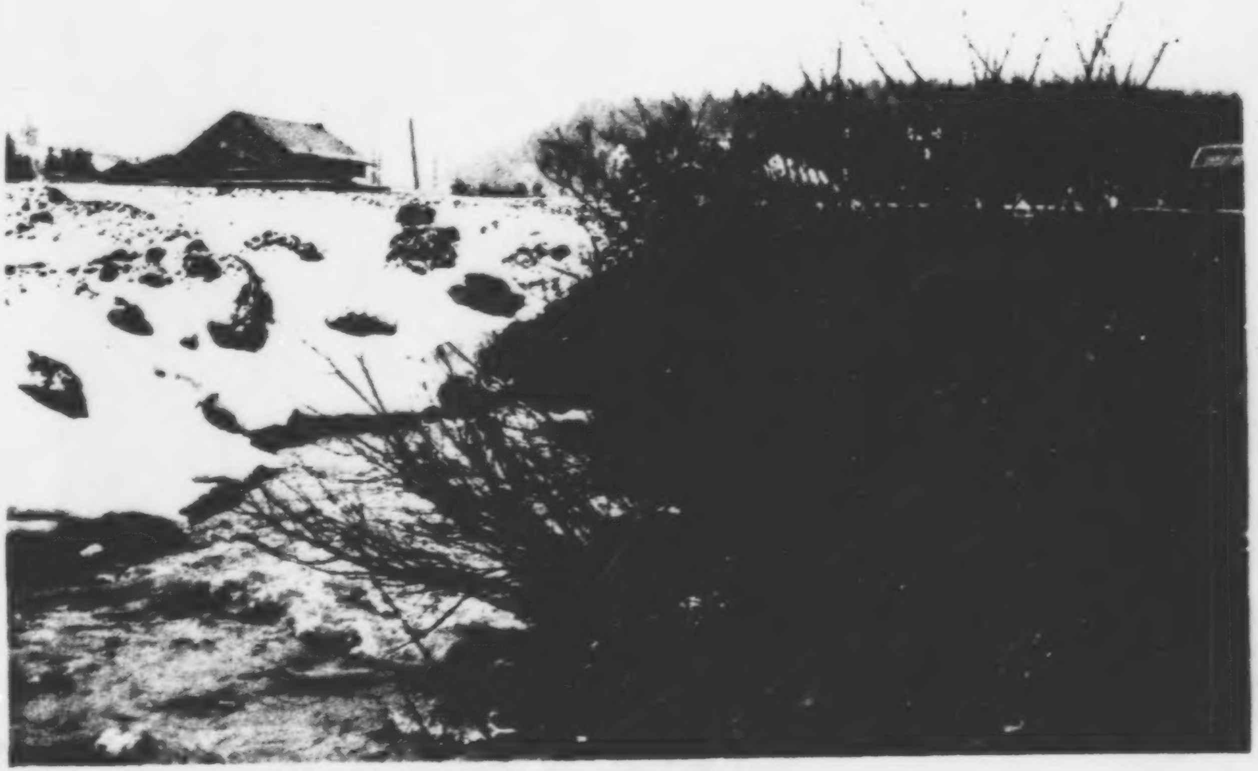
LOCATION: VAL D'AMOUR - UPSTREAM OF SECOND BRIDGE
ABOVE ROAD TO MALAUZE
STRUCTURE: B-23

- PHOTO NO. 61 -

LOCATION: VAL D'AMOUR - DOWNSTREAM OF CULVERT
PIPE AT ROAD TO GRAVEL PIT ALONG
HWY. 270

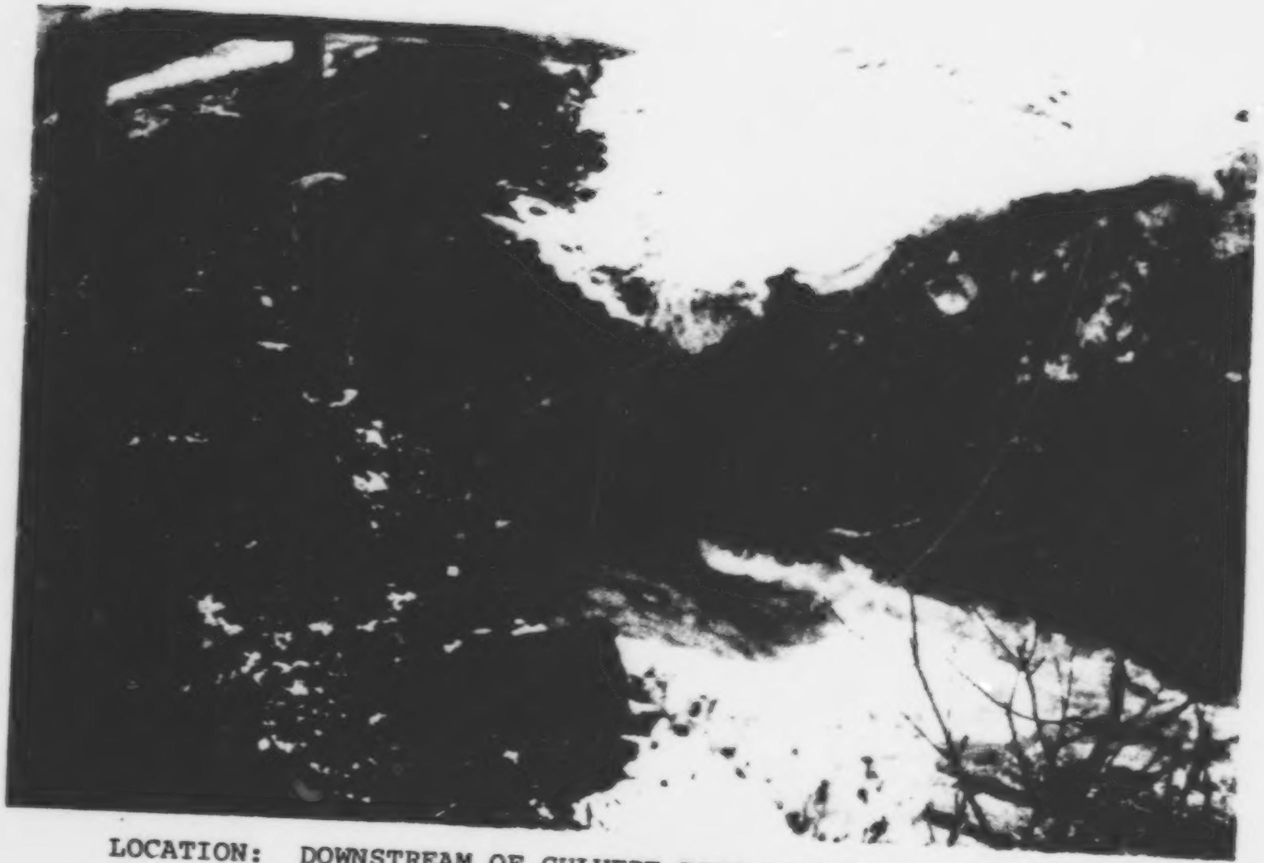
STRUCTURE: B-24

- PHOTO NO. 62 -



LOCATION: VAL D'AMOUR - UPSTREAM OF CULVERT
PIPE AT ROAD TO GRAVEL PIT ALONG
HWY. 270

- PHOTO NO. 63 -



LOCATION: DOWNSTREAM OF CULVERT PIPE AT LILLY LAKE ROAD INTERSECTION WITH HWY. 270
STRUCTURE: B-25

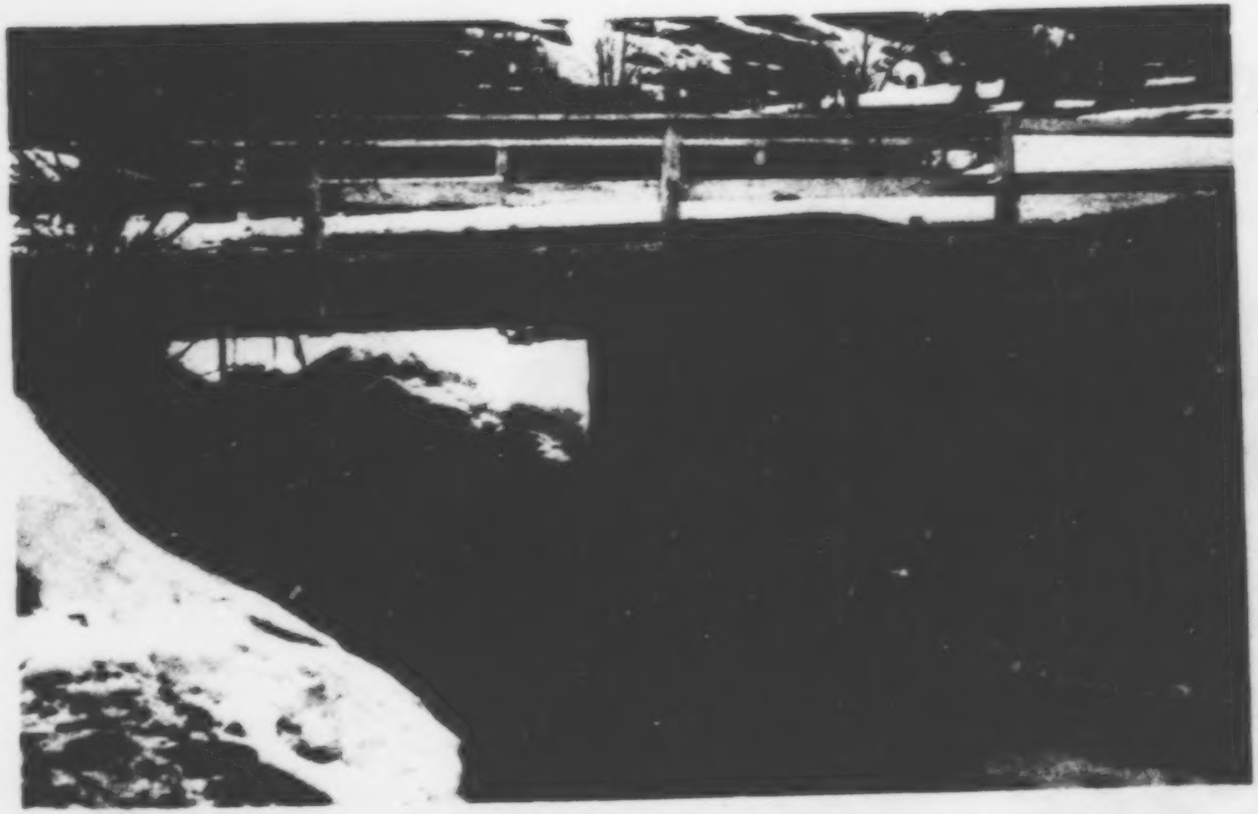
- PHOTO NO. 64 -

LOCATION: UPSTREAM OF CULVERT PIPE AT LILLY
LAKE ROAD INTERSECTION WITH HWY. 270
STRUCTURE: B-25
GAUGE: NO. 23

- PHOTO NO. 65 -

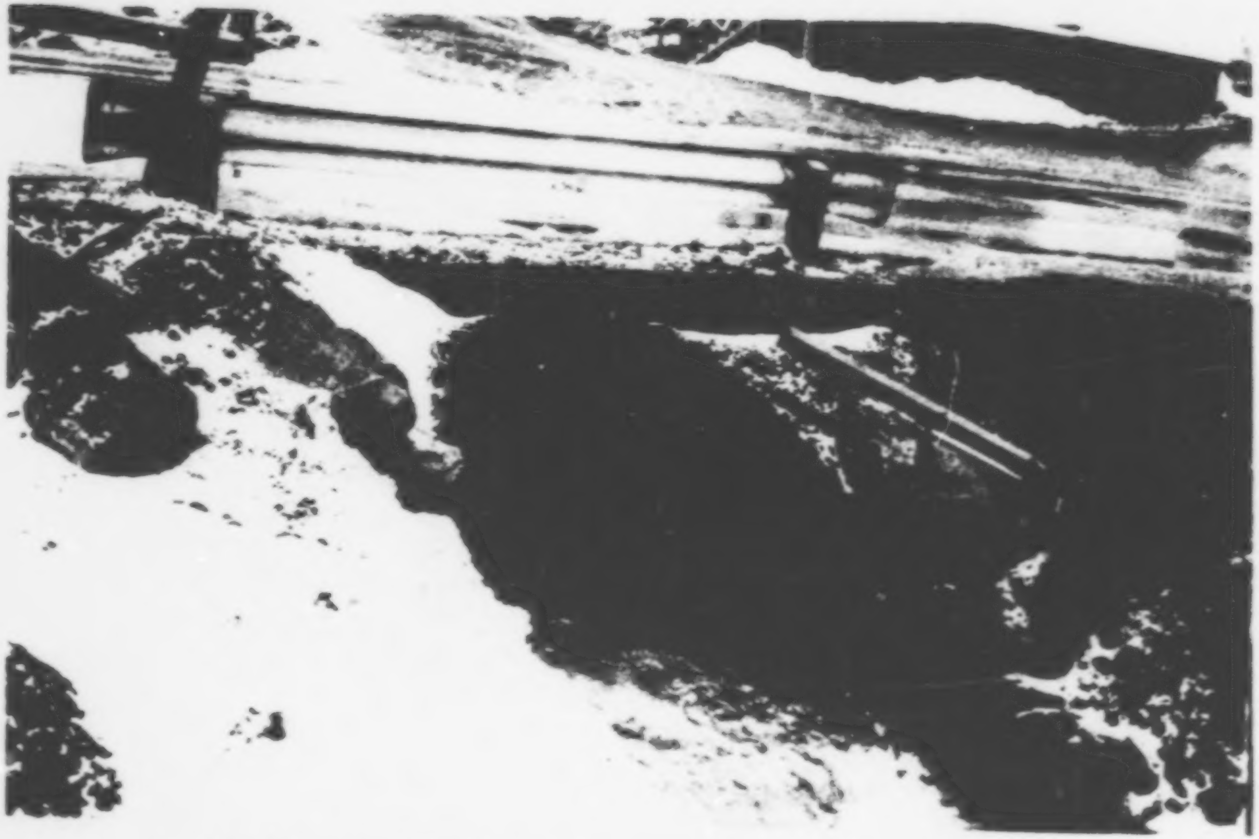
LOCATION: DOWNSTREAM OF BRIDGE TO CEMETARY
BEHIND CHURCH IN VAL D'AMOUR
STRUCTURE: B-26

- PHOTO NO. 66 -



LOCATION: UPSTREAM OF BRIDGE TO CEMETARY BEHIND
CHURCH IN VAL D'AMOUR
STRUCTURE: B-26
GAUGE: NO. 24 and NO. 25

- PHOTO NO. 67 -

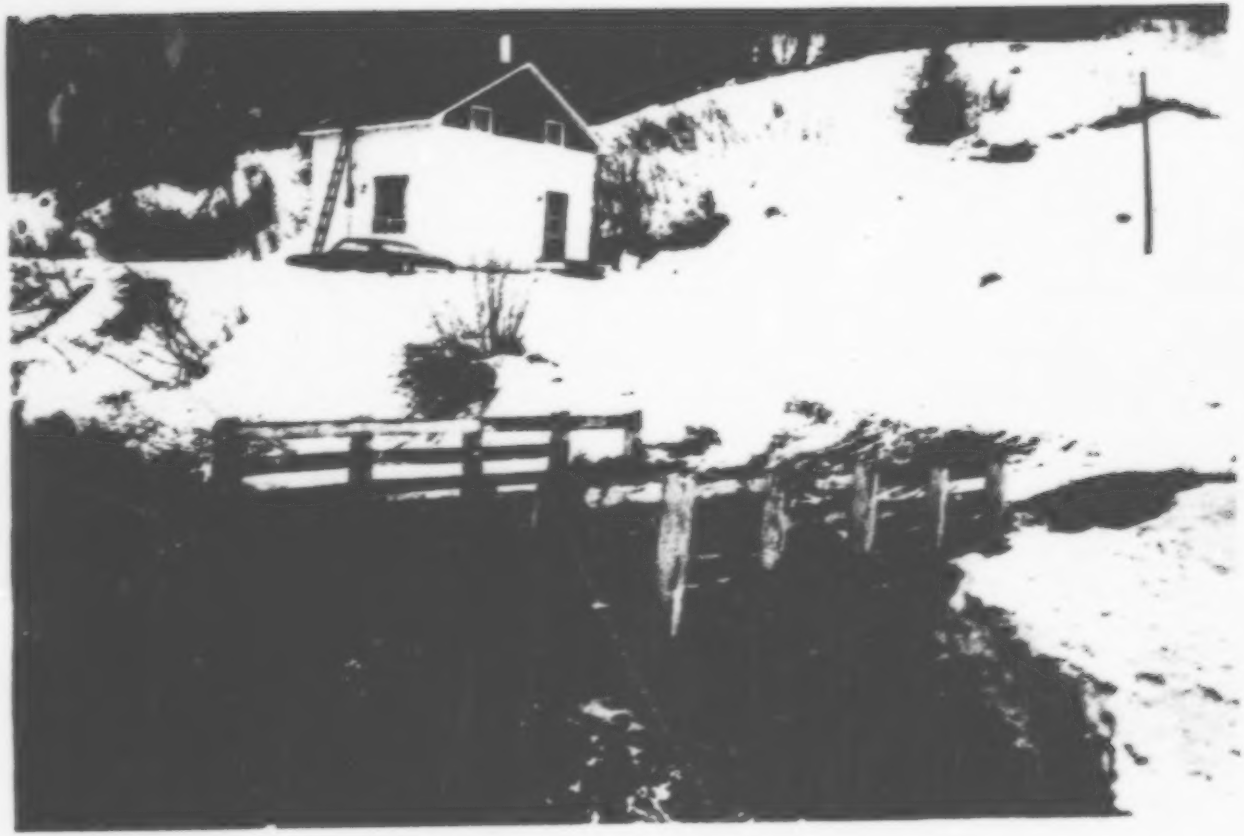


LOCATION: DOWNSTREAM OF CULVERT AT FIRST ROAD
CROSSING ALONG HWY. 270 ABOVE CHURCH
IN VAL D'AMOUR
STRUCTURE: B-27

- PHOTO NO. 68 -

LOCATION: UPSTREAM OF CULVERT AT FIRST ROAD
CROSSING ABOVE CHURCH IN VAL D'AMOUR
STRUCTURE: B-27

- PHOTO NO. 69 -



LOCATION: DOWNSTREAM OF BRIDGE AT HOUSE
IMMEDIATELY ABOVE PHOTO NO. 69 ON
WEST SIDE OF HWY. NO. 270

- PHOTO NO. 70 -

LOCATION: UPSTREAM OF BRIDGE AT HOUSE IMMEDIATELY ABOVE PHOTO NO. 60 ON WEST SIDE OF HWY. NO. 270
STRUCTURE: B-28

- PHOTO NO. 71 -

LOCATION: DOWNSTREAM OF SECOND ROAD CROSSING (HWY. 270) ABOVE CHURCH IN VAL D'AMOUR
STRUCTURE: B-29

- PHOTO NO. 72 -

LOCATION: UPSTREAM OF SECOND ROAD CROSSING
ABOVE CHURCH IN VAL D'AMOUR
STRUCTURE: B-29

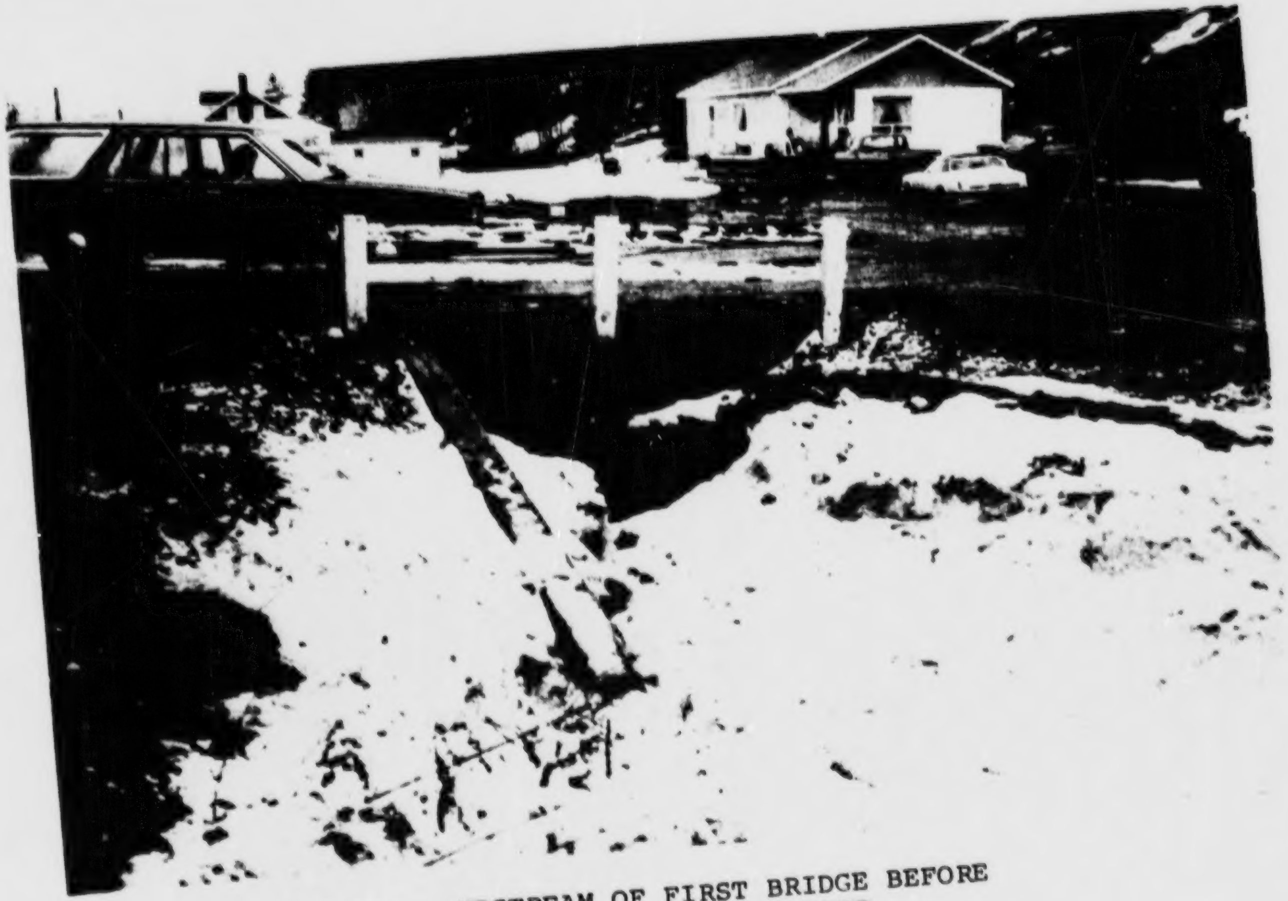
- PHOTO NO. 73 -

LOCATION: FIRST BRIDGE AND HOUSE BEFORE
            BODY SHOP IN VAL D'AMOUR
STRUCTURE: B-30

- PHOTO NO. 74 -

LOCATION: DOWNSTREAM OF FIRST BRIDGE BEFORE
BODY SHOP IN VAL D'AMOUR
STRUCTURE: B-30

- PHOTO NO. 75 -

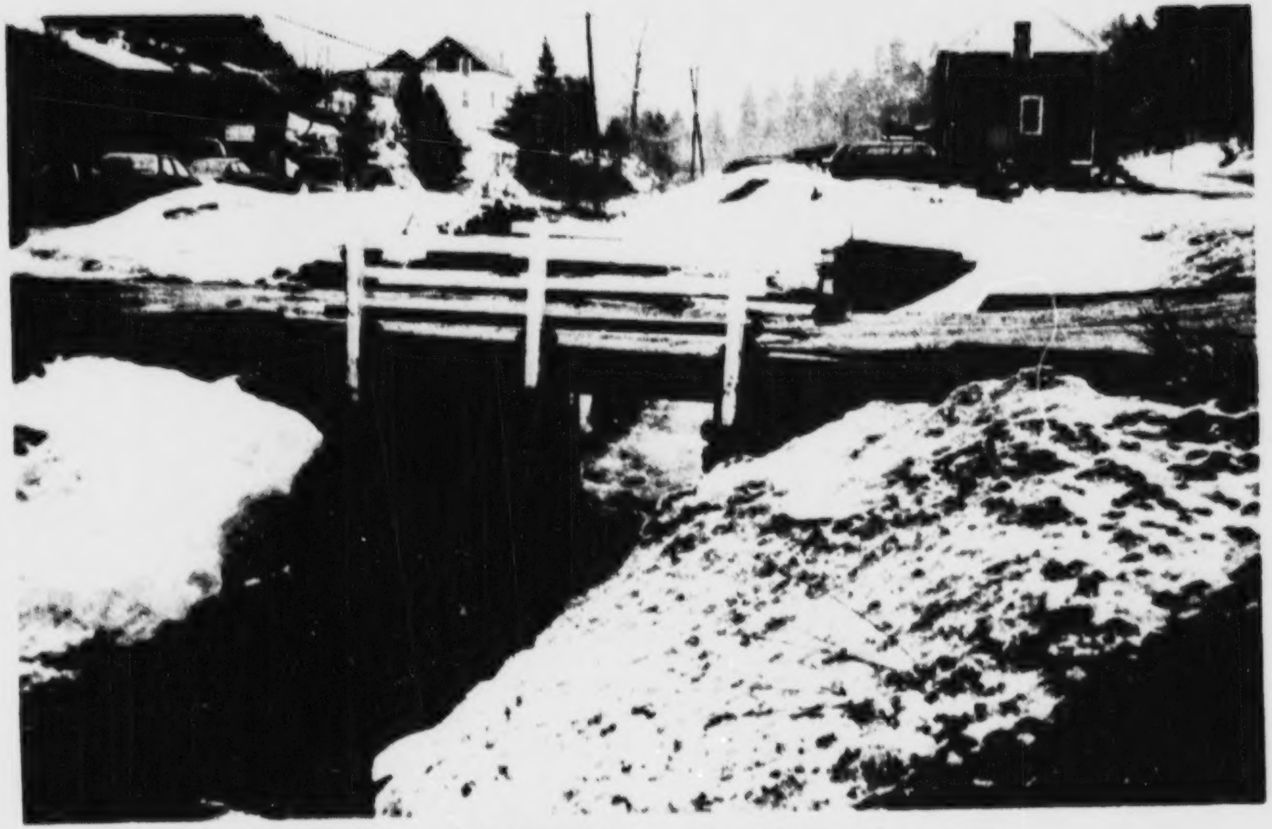


LOCATION: UPSTREAM OF FIRST BRIDGE BEFORE
BODY SHOP IN VAL D'AMOUR

STRUCTURE: B-30 - PHOTO NO. 76 -

LOCATION: HOUSE AND BRIDGE AT BODY SHOP
(GAUGE NO. 26) IN VAL D'AMOUR
STRUCTURE: B-31
GAUGE: NO. 26

- PHOTO NO. 77 -



LOCATION: DOWNSTREAM OF BRIDGE AT BODY SHOP
IN FAL D'AMOUR
STRUCTURE: B-31

- PHOTO NO. 78 -

LOCATION: UPSTREAM OF BRIDGE AT BODY SHOP IN VAL D'AMOUR
STRUCTURE: B-31
GAUGE: NO. 26

- PHOTO NO. 79 -

LOCATION: DOWNSTREAM OF OLD ABUTMENT AT
BODY SHOP, VAL D'AMOUR
STRUCTURE: B-32
GAUGE: NO. 27

- PHOTO NO. 80 -

LOCATION: DOWNSTREAM OF CULVERT AT ROAD
CROSSING ABOVE BODY SHOP IN
VAL D'AMOUR
STRUCTURE: B-33

- PHOTO NO. 81 -

LOCATION: UPSTREAM OF CULVERT AT ROAD CROSSING ABOVE BODY SHOP IN VAL D'AMOUR

STRUCTURE: B-33

- PHOTO NO. 82 -

ADDITIONAL PICTURES TAKEN

DECEMBER 14, 1982

LOCATION: UPSTREAM OF CULVERT AT INTERSECTION OF PINE STREET AND ILA ROAD
STRUCTURE: B-8

- PHOTO NO. 83 -

LOCATION: LOOKING UPSTREAM AT INTERSECTION OF PINE STREET AND ILA ROAD

- PHOTO NO. 84 -

LOCATION: LOOKING UPSTREAM ABOVE INTERSECTION OF PINE STREET AND ILA ROAD

- PHOTO NO. 85 -

LOCATION: LOOKING DOWNSTREAM BELOW PEDESTRIAN WALKWAY BRIDGE ON ALEXANDER STREET

- PHOTO NO. 86 -

LOCATION: LOOKING DOWNSTREAM AT PEDESTRIAN WALKWAY BRIDGE ON ALEXANDER STREET

- PHOTO NO. 87 -

LOCATION: DOWNSTREAM SIDE OF PEDESTRIAN WALKWAY BRIDGE ON ALEXANDER STREET
STRUCTURE: B-9

- PHOTO NO. 88 -

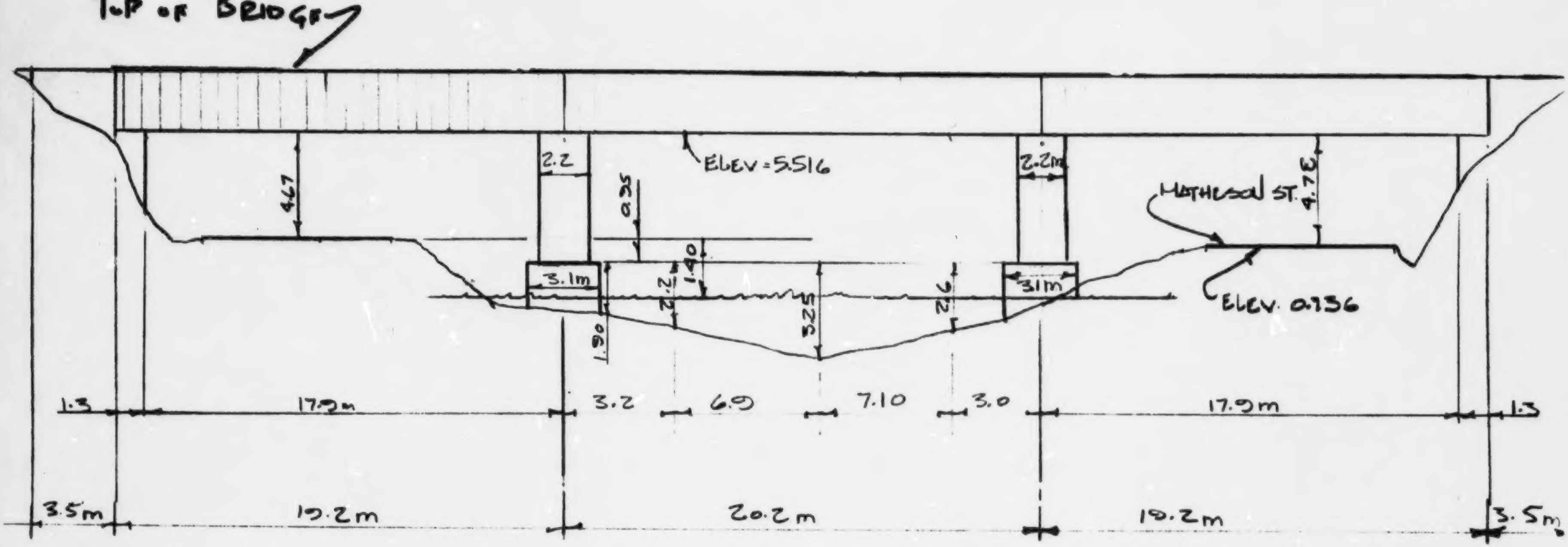
SECTION C

STRUCTURES

(All units shown are in metres)

STRUCTURE B-2

SCALE = 1:250

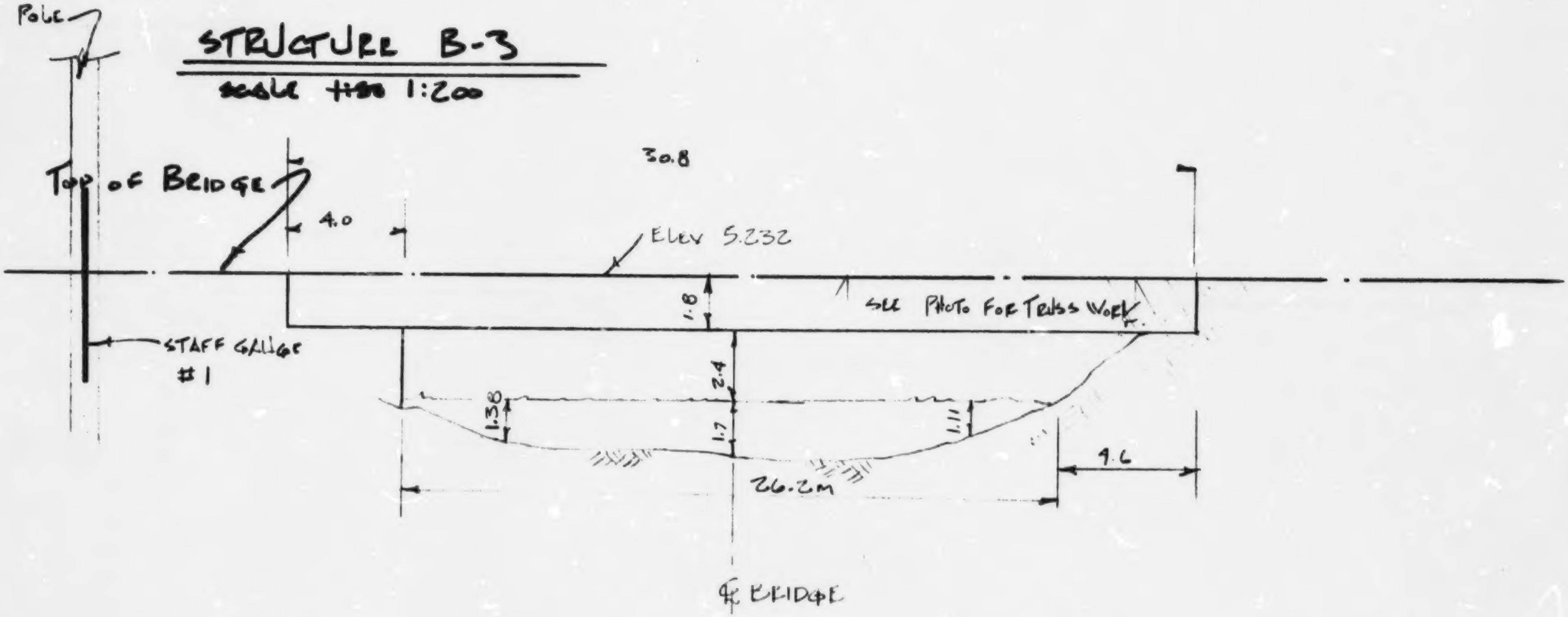


DOWNSTREAM SIDE

OPENING AREA = 58.4 m² TO TOP OF MATHESON ST.

STRUCTURE B-3

SCALE H&V 1:200

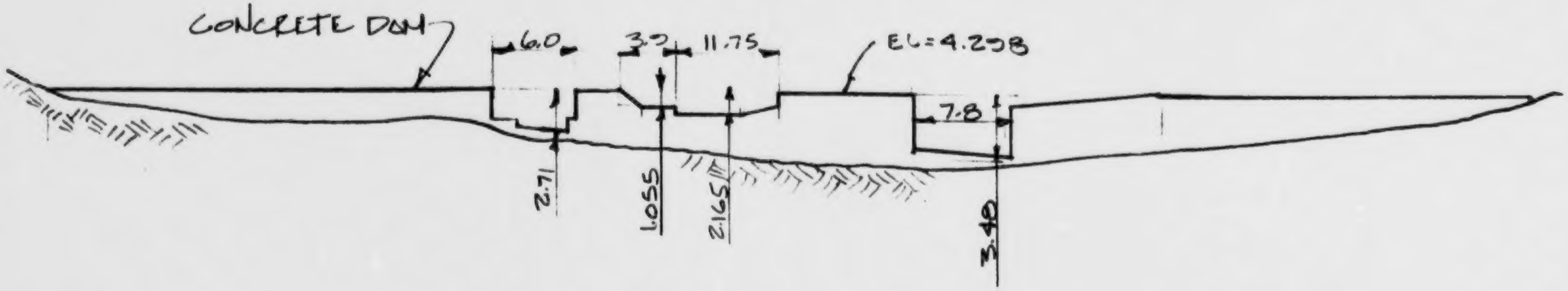


OPENING AREA = 87.24 m²

DOWNSTREAM SIDE

STRUCTURE B-3A

1:500



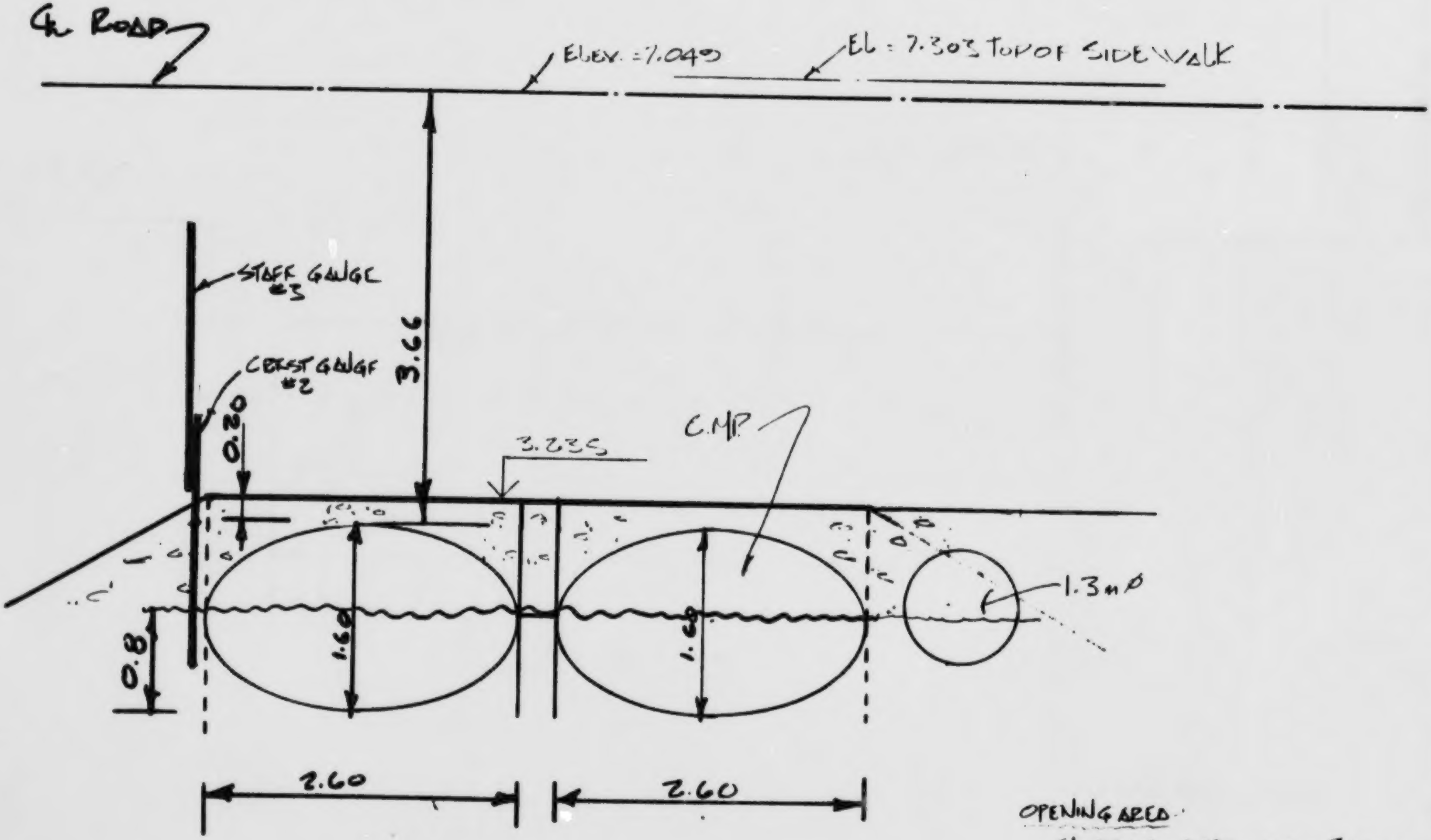
UPSTREAM SIDE

OPENING AREA = 72.55 m²

STRUCTURE B-4

scale 1:50

(VILLAGE ROAD)



UPSTREAM SIDE

OPENING AREA:

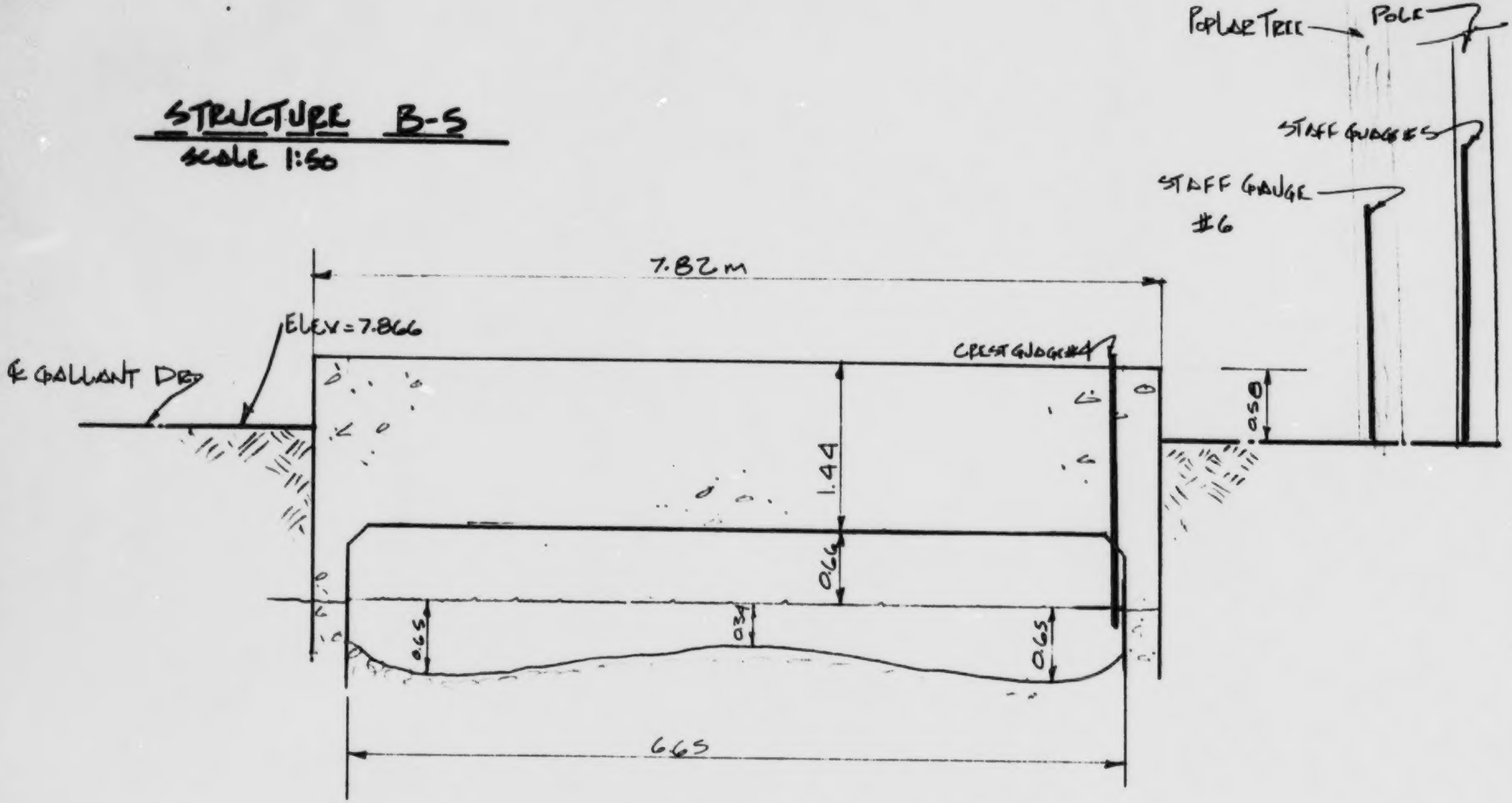
ELIPTICAL C.M.P. = 3.5 m²/PIPE

CIRCULAR CMP - 1.33 m²

8.33 m²

STRUCTURE B-5

scale 1:50

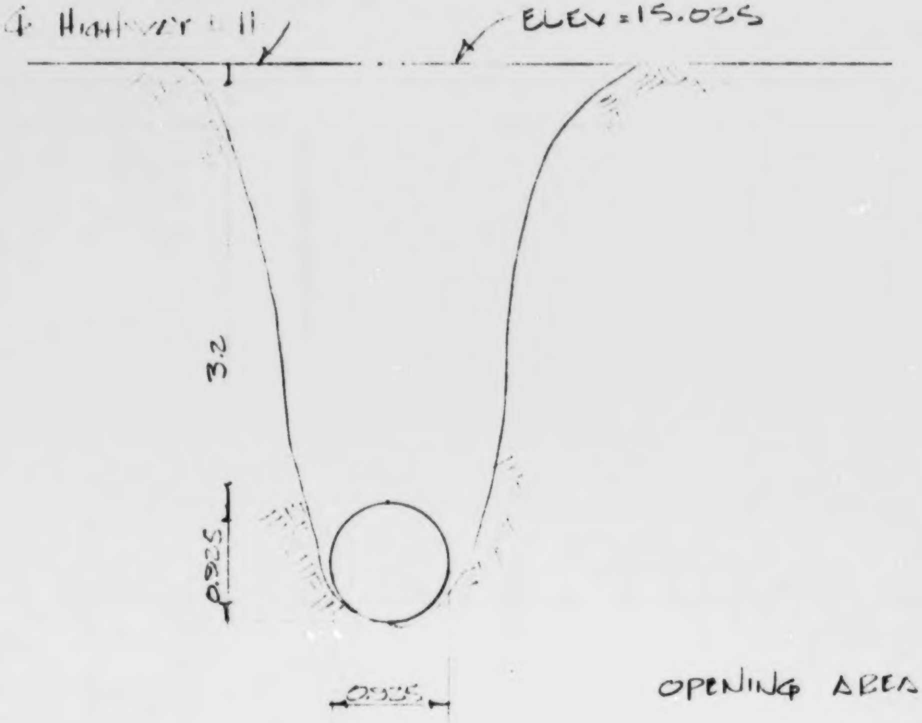


UPSTREAM SIDE

OPENING AREA = 7.68 m²

STRUCTURE B-5A

SCALE 1:50

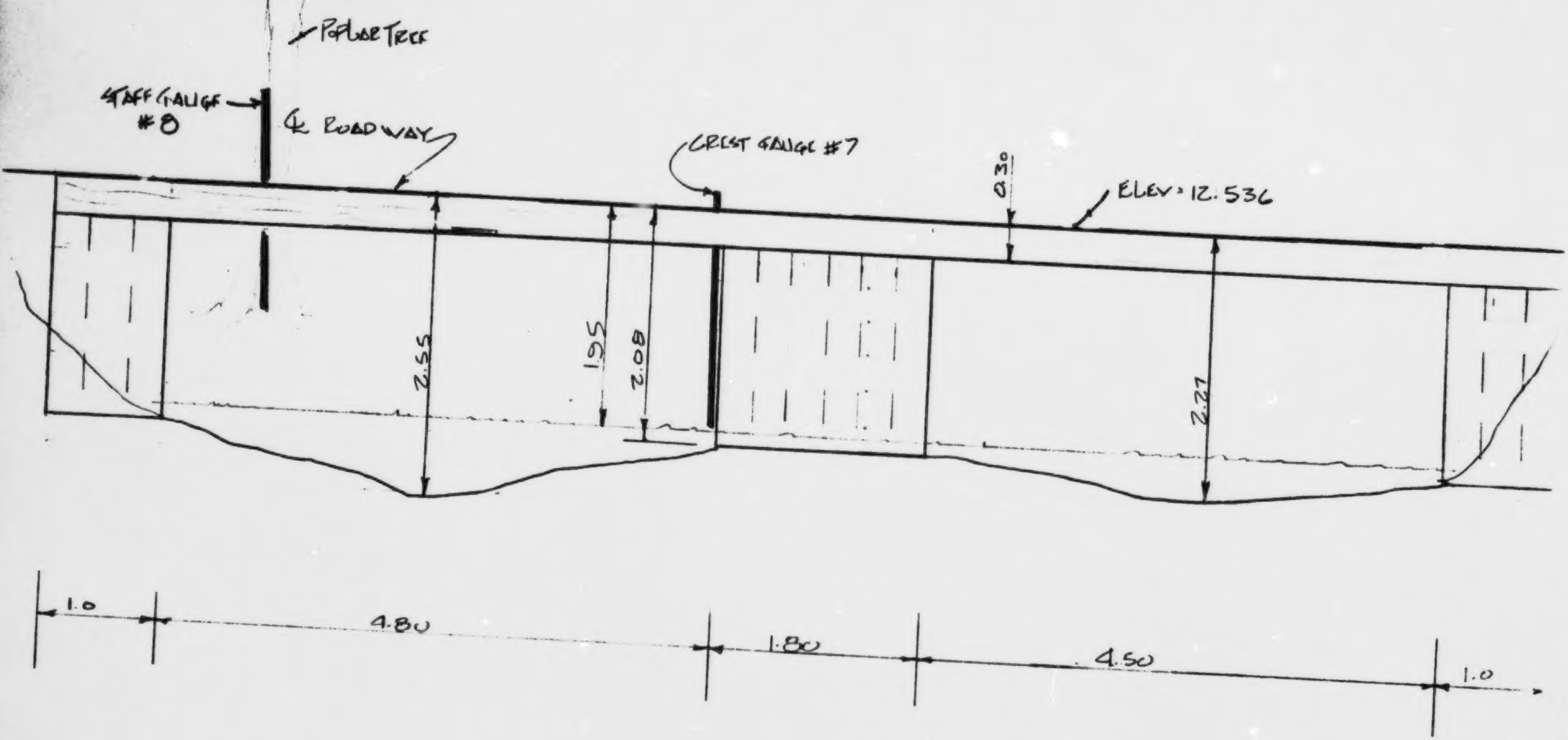


OPENING AREA = 0.67 m²

UPSTREAM SIDE

STRUCTURE B-6

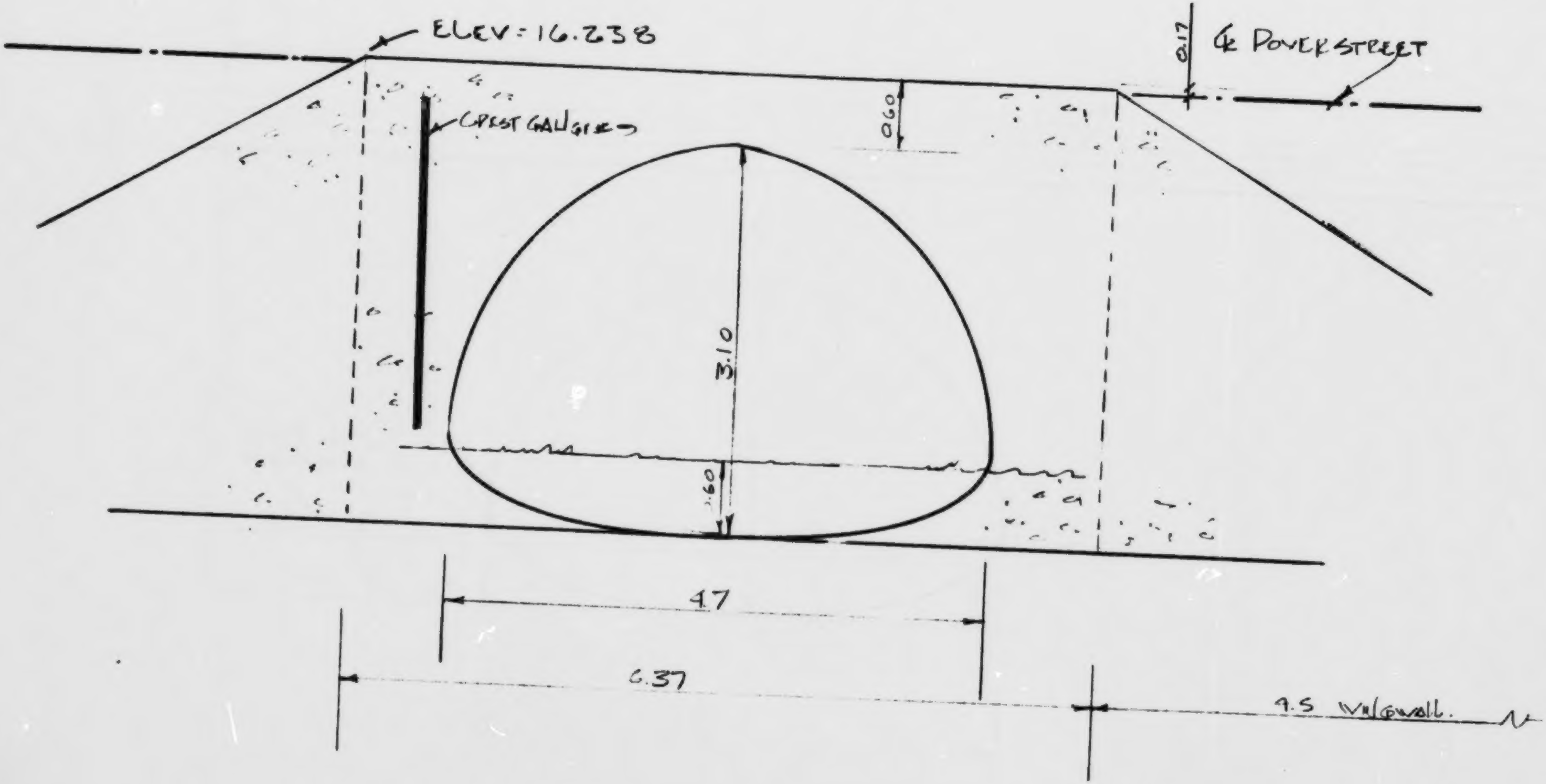
SCALE 1:50



UP STREAM SIDE

OPENING AREA = 20.50 M²

STRUCTURE B-7
SCALE = 1:50

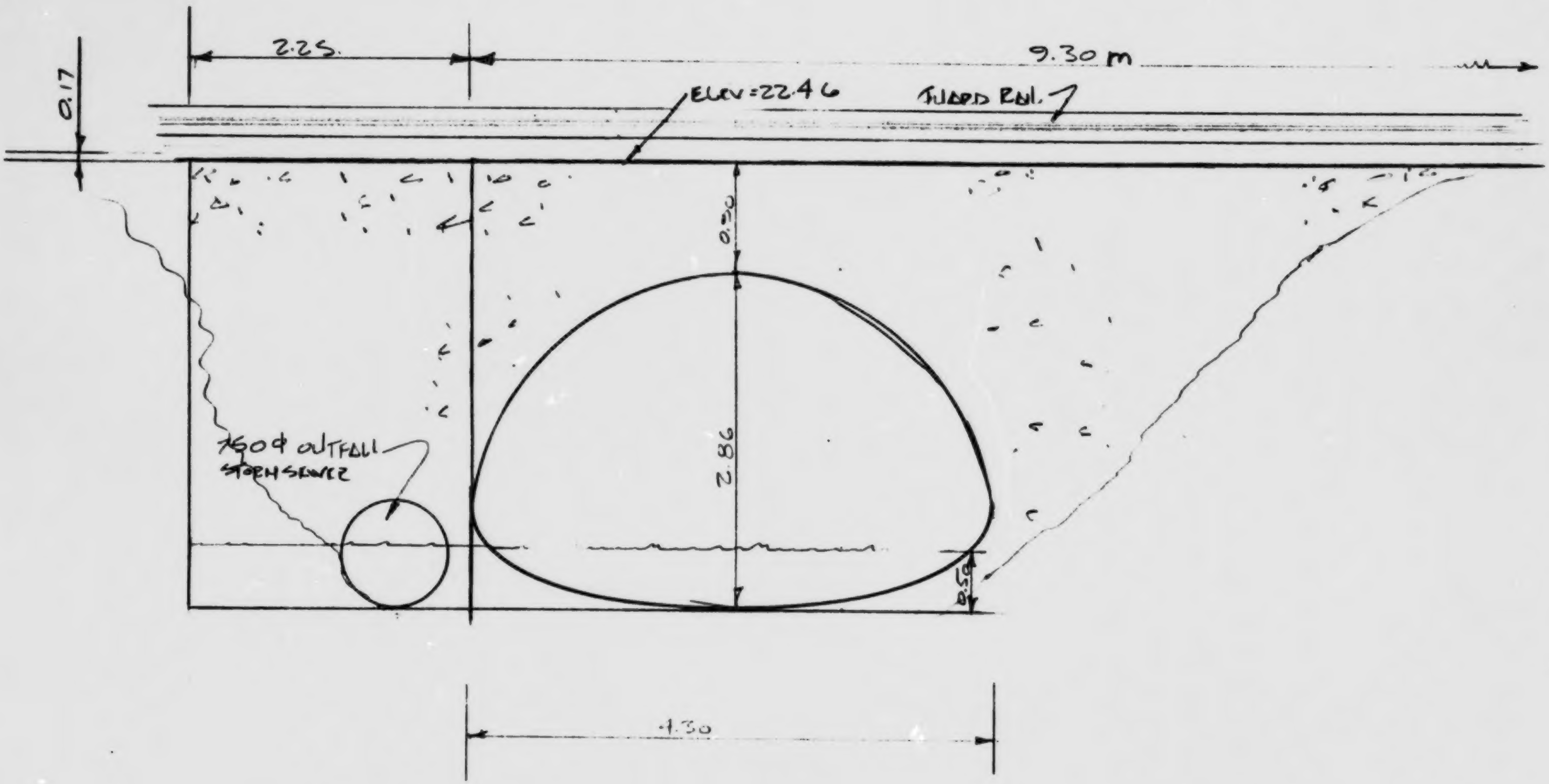


UPSTREAM SIDE

OPENING AREA = 11 M²

STRUCTURE B-8

SCALE 1:50

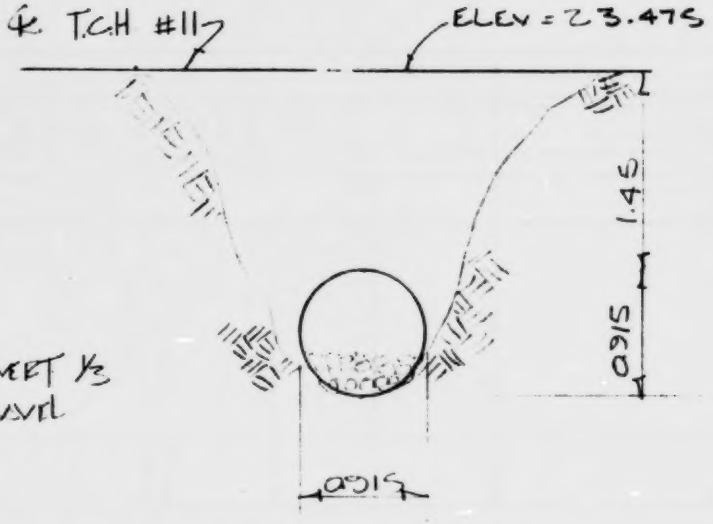


DOWNSTREAM SIDE

OPENING AREA = 9.8 m² FOR Culvt

STRUCTURE B-8A.

SCALE 1:50



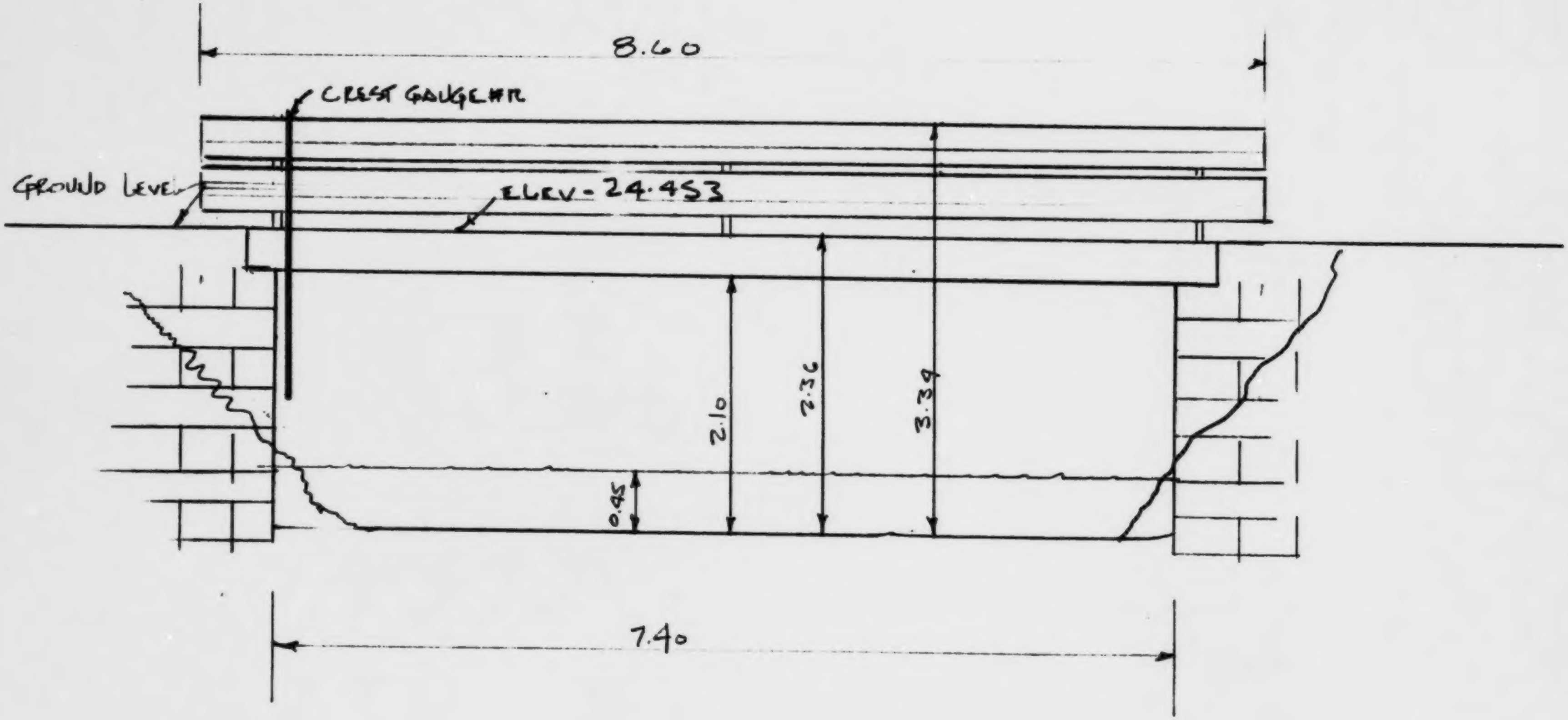
NOTE:
C.M.P. CULVERT ⅓
FULL OF GRAVEL

UPSTREAM SIDE

OPENING AREA: 0.66 m²

STRUCTURE B-9

SCALE 1:50

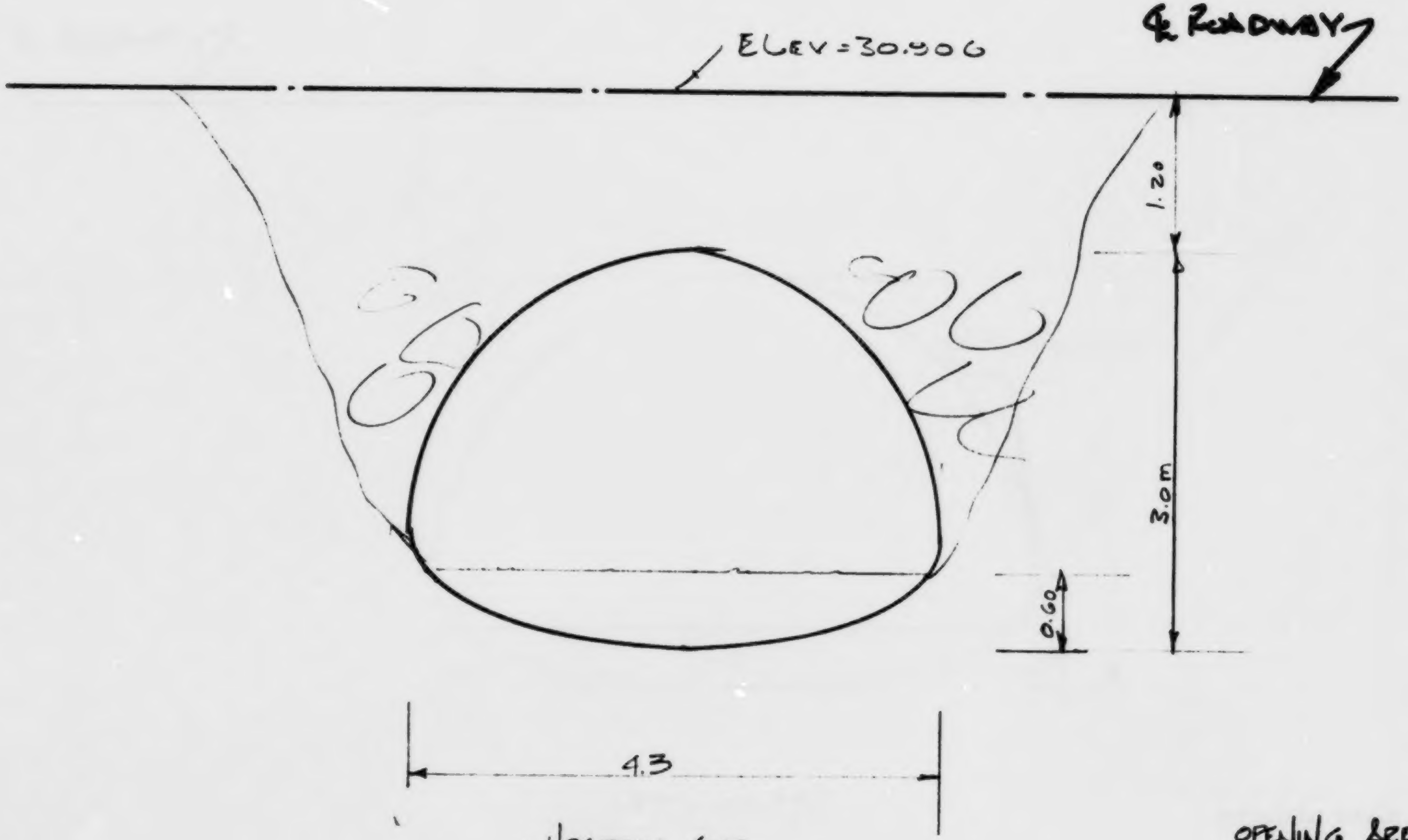


UPSTREAM SIDE

OPENING AREA = 15.0m²

STRUCTURE B-10

SCALE = 1:50

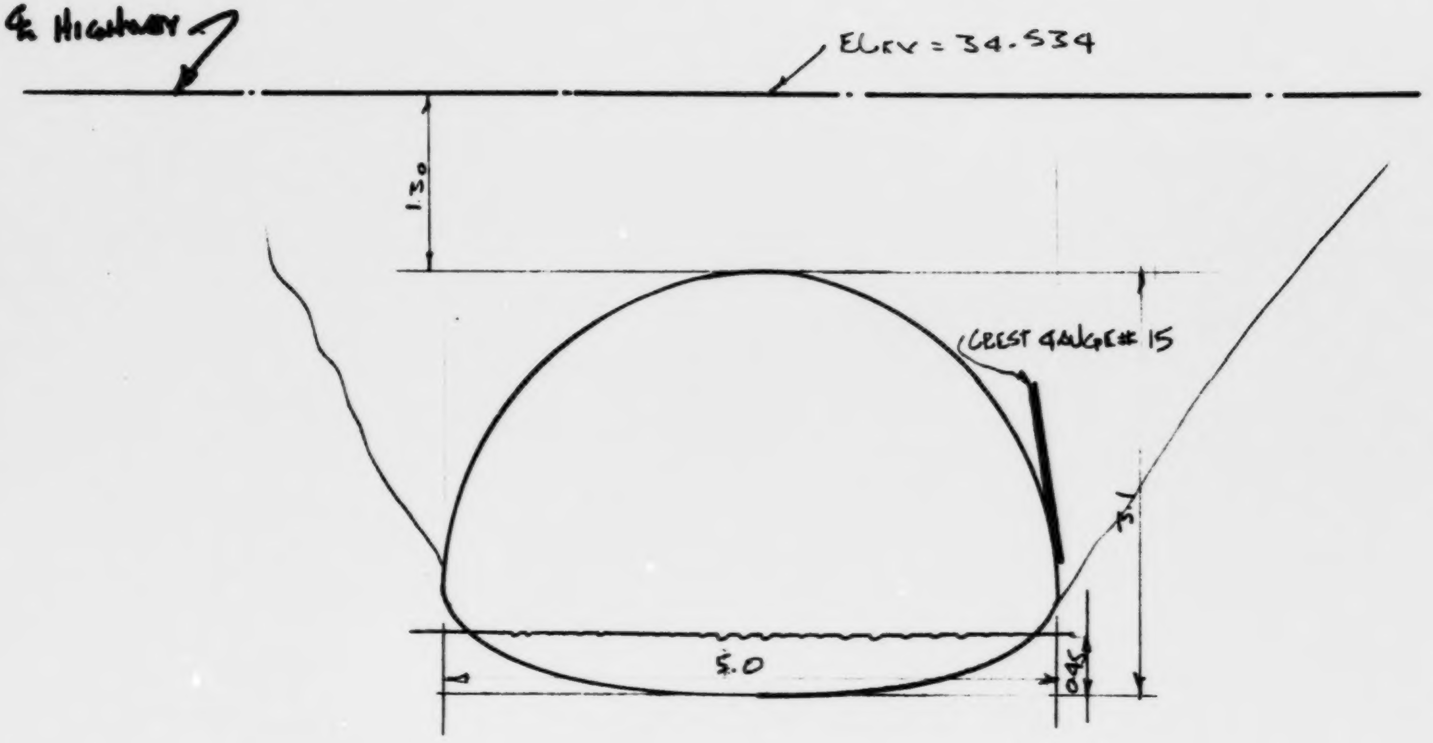


UPSTREAM SIDE

OPENING AREA = 9.2 m^2

STRUCTURE B-11

SCALE 1:50

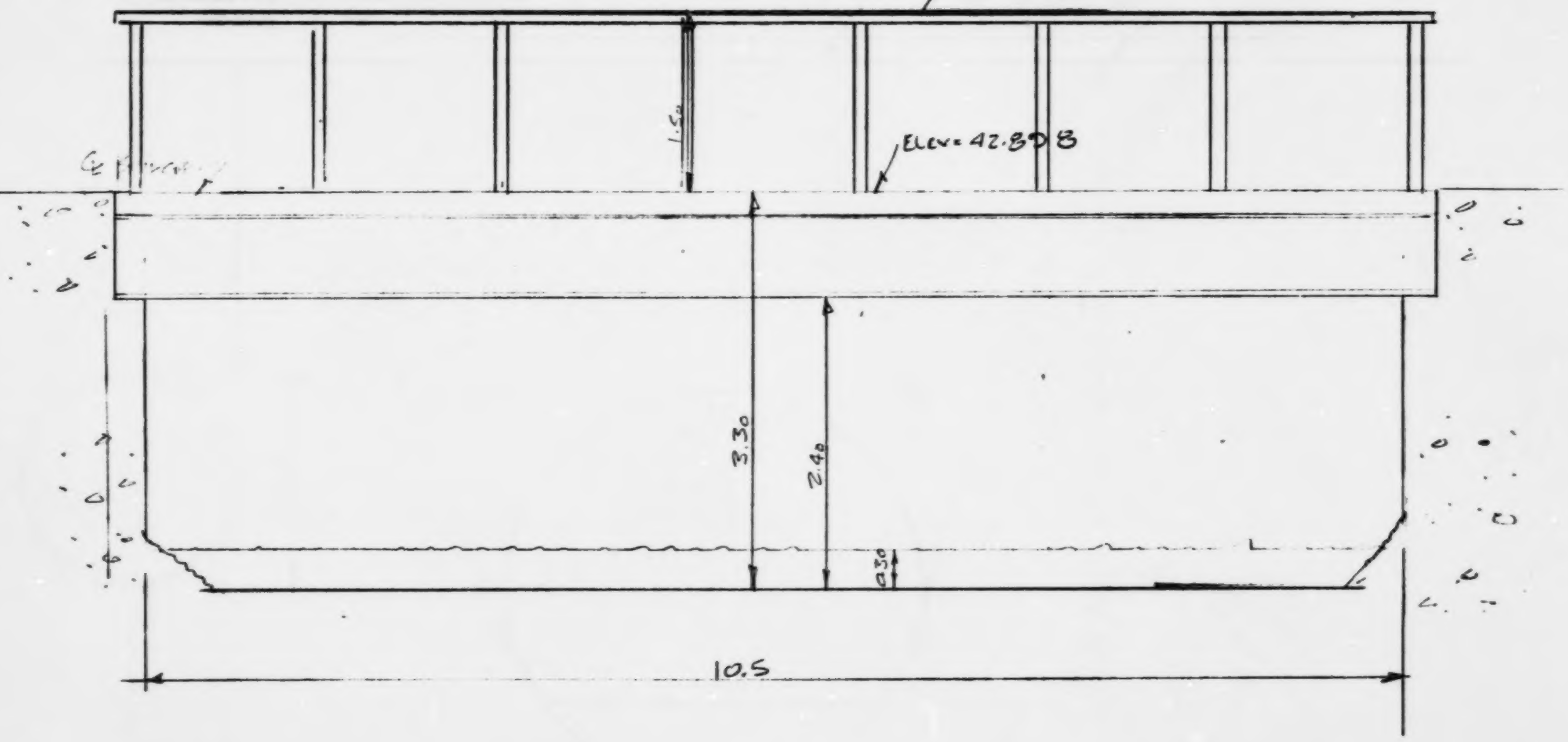


UPSTREAM SIDE

OPENING AREA = 1070 m^2

STRUCTURE B-12

scale 1:50

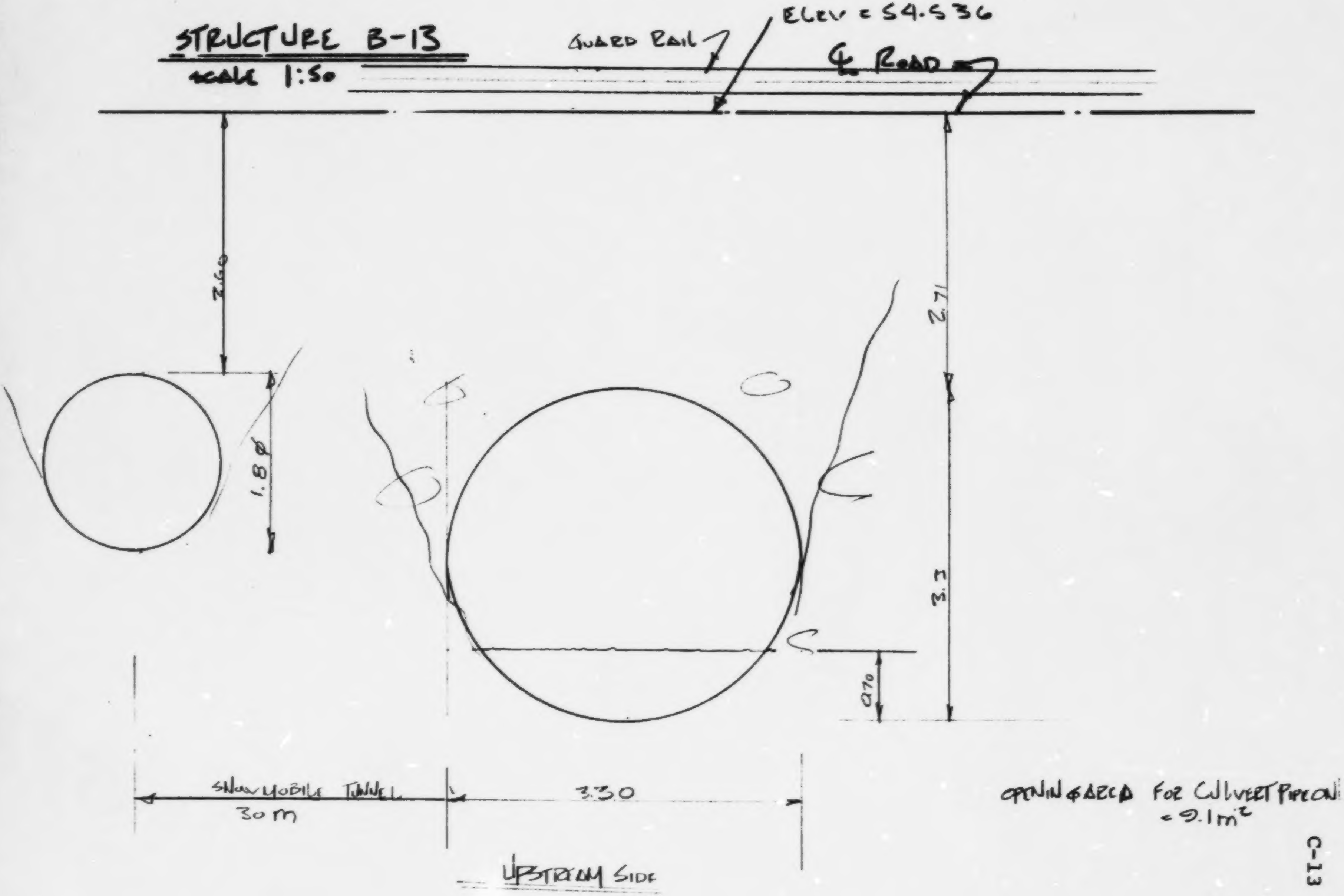


UPSTREAM SIDE

OPENING AREA = 25m²

STRUCTURE B-13

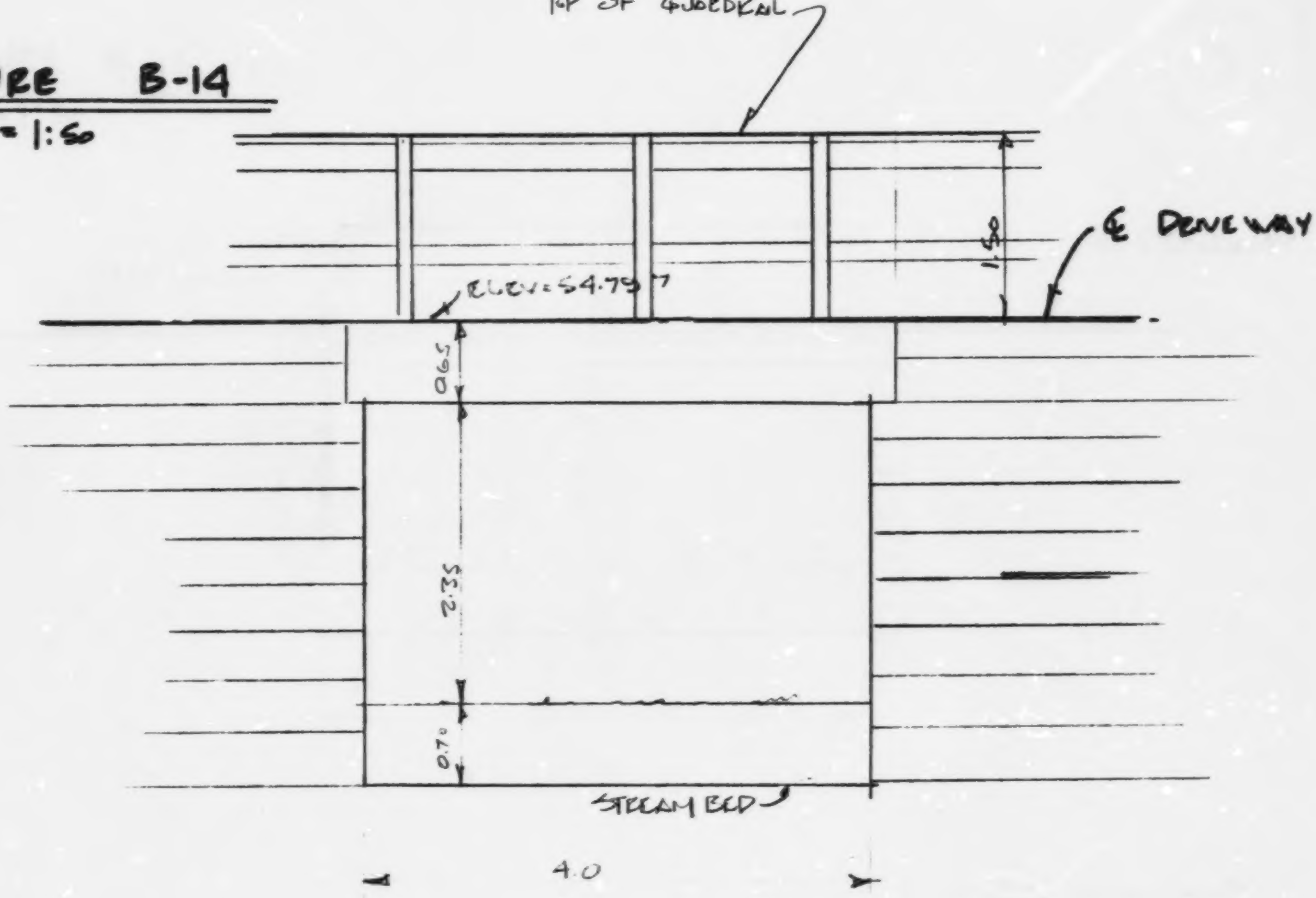
SCALE 1:50



OPENING AREA FOR CULVERT PIPE ON
= 9.1 m²

STRUCTURE B-14

SCALE = 1:50

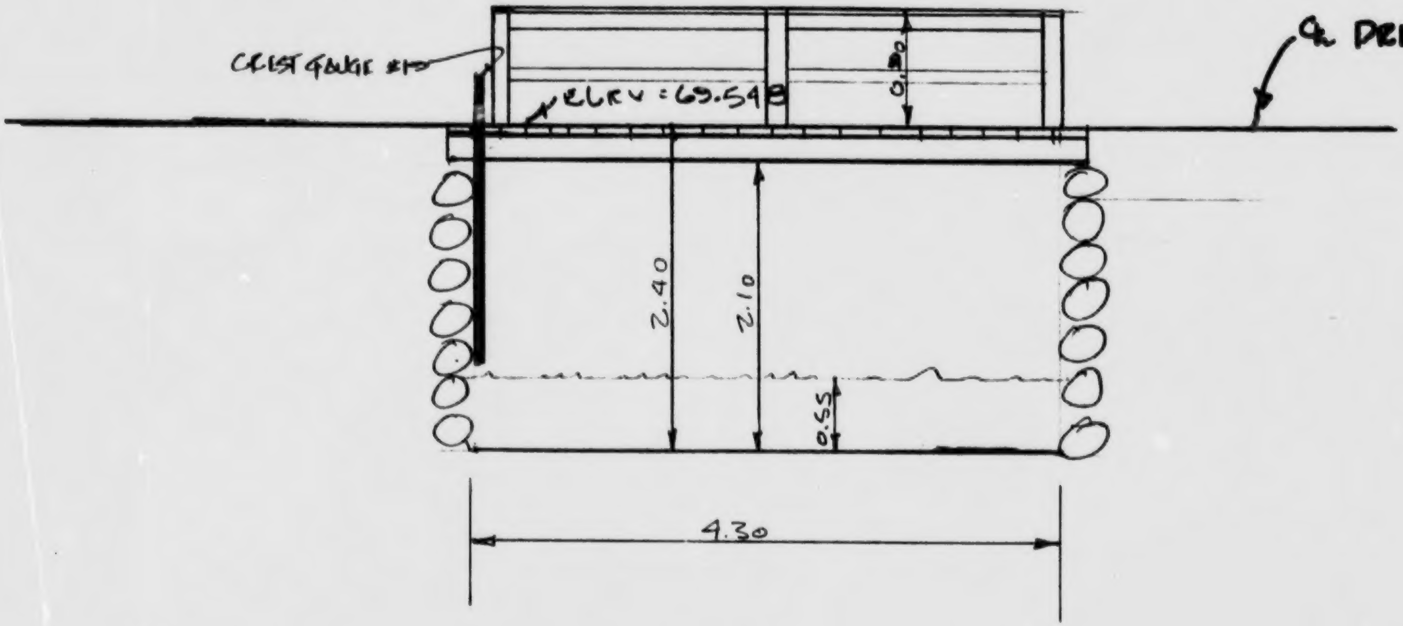


UP STREAM & DOWN STREAM

OPENING AREA = 12.2m^2

STRUCTURE B-15

SCALE = 1:50

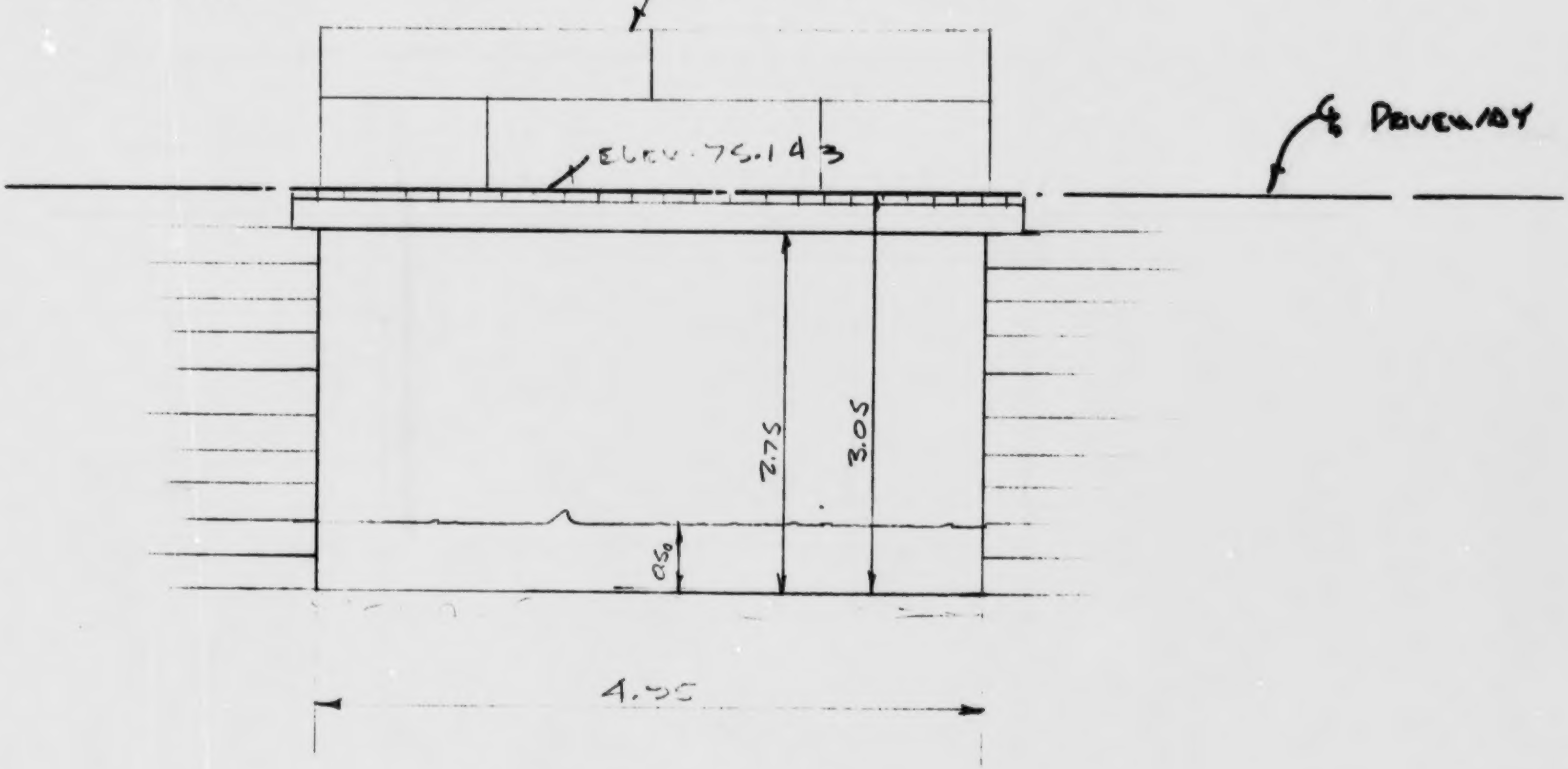


OPENING AREA = 9 m^2

UPSTREAM

STRUCTURE B-16

SCALE = 1:50

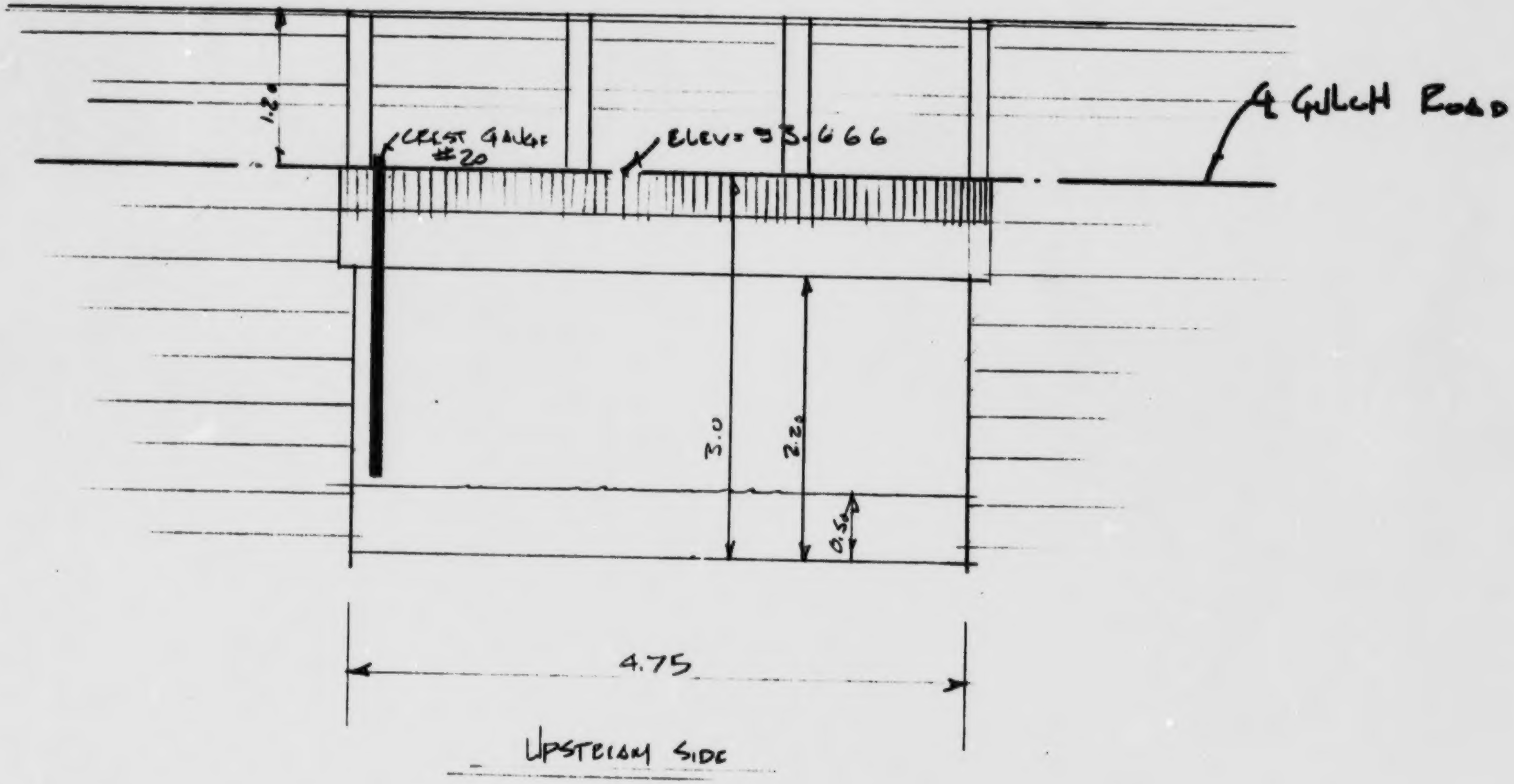


UPSTREAM & DOWNSTREAM

OPENING AREA = 13.6 m^2

STRUCTURE B-17

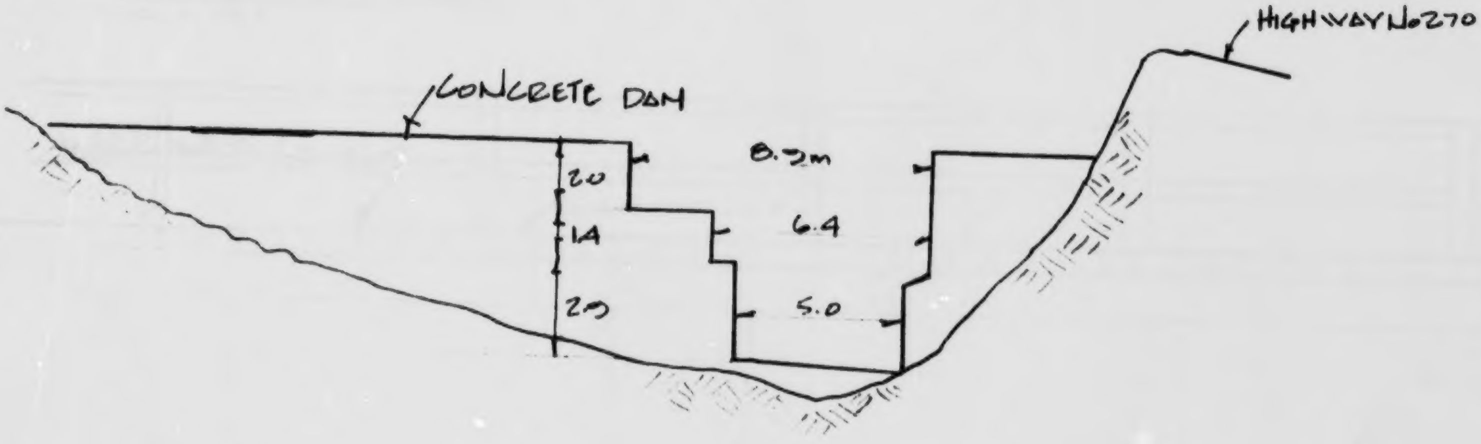
SCALE 1:50



OPENING AREA = 10.6M²

STRUCTURE B-18

SCALE 1:200

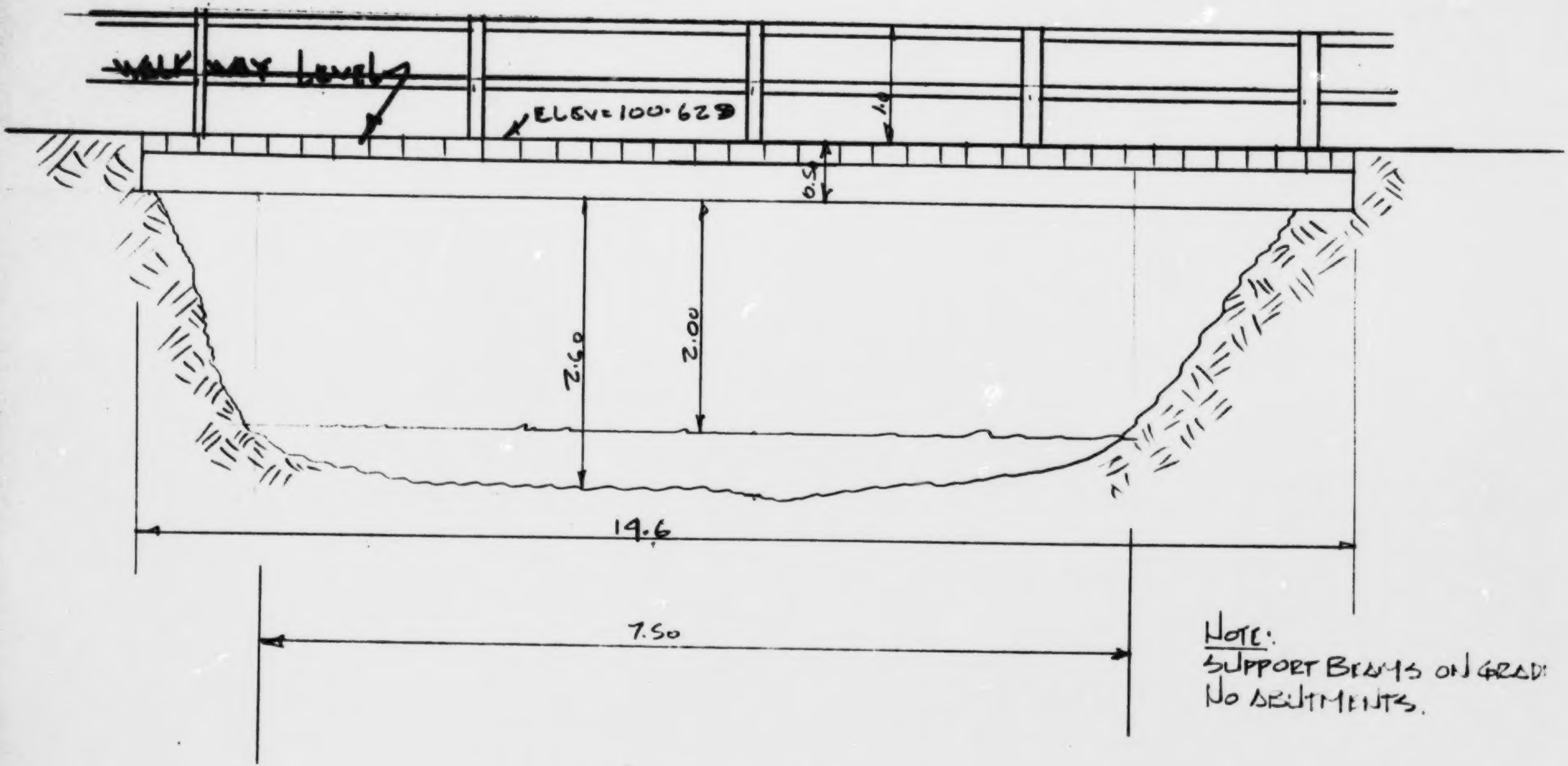


UPSTREAM SIDE

OPENING AREA = 41.26 m²

STRUCTURE B-19

SCALE 1:50



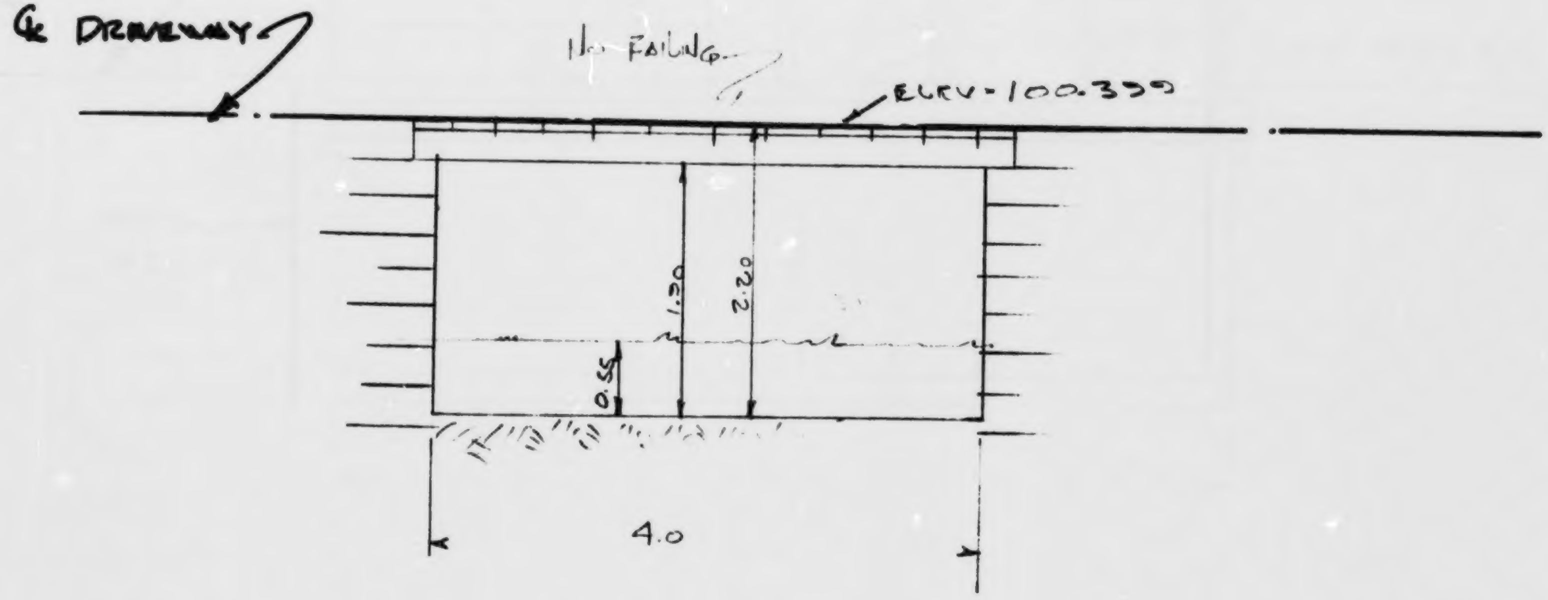
NOTE:
SUPPORT BEAMS ON GRADE
NO ABUTMENTS.

UPSTREAM SIDE

OPENING AREA = 20 m²

STRUCTURE B-20

SCALE 1:50

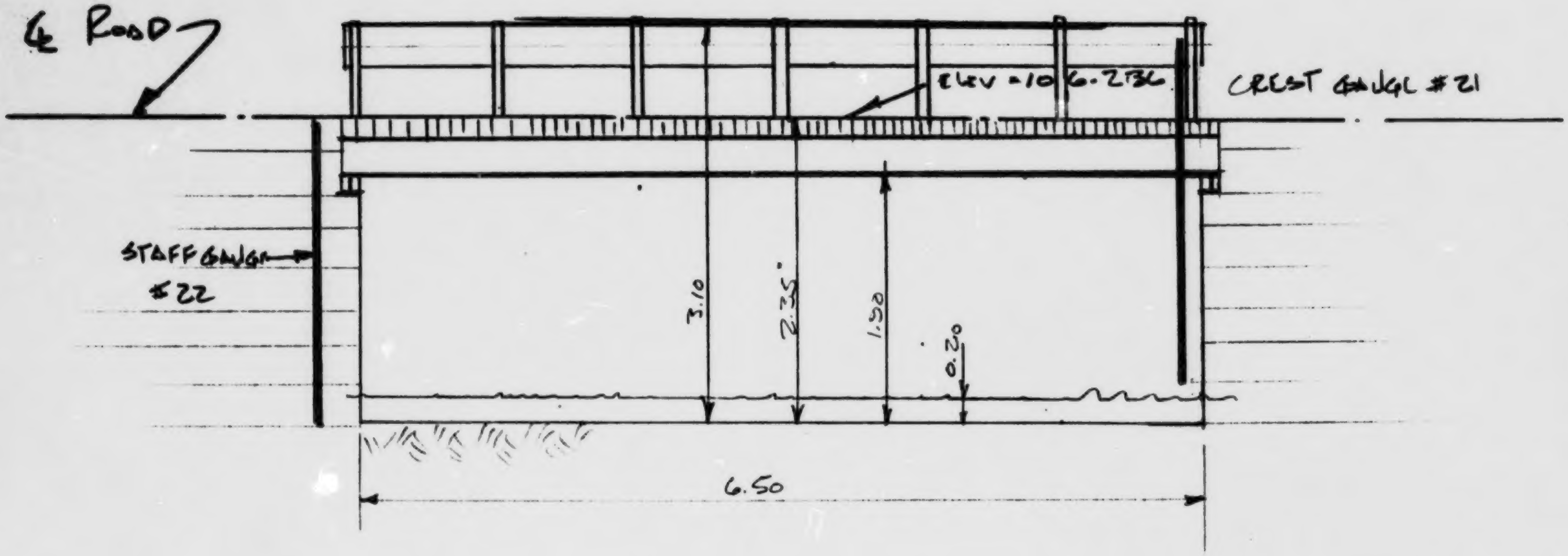


UPSTREAM SIDE

OPENING AREA = 7.6m²

STRUCTURE B-21

SCALE 1:50

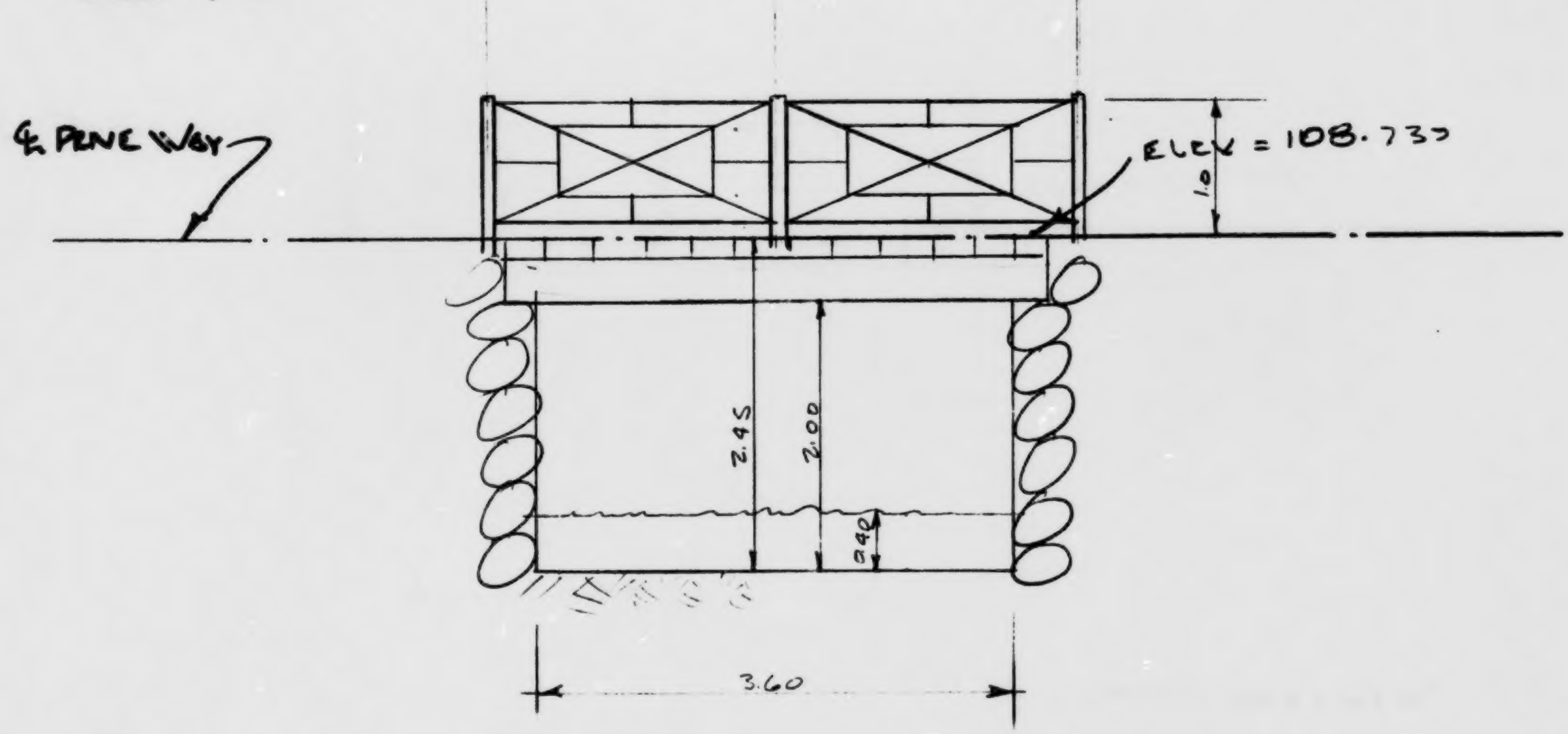


UPSTREAM SIDE

OPENING AREA = 12.4 m²

STRUCTURE B-22

Scale 1:60

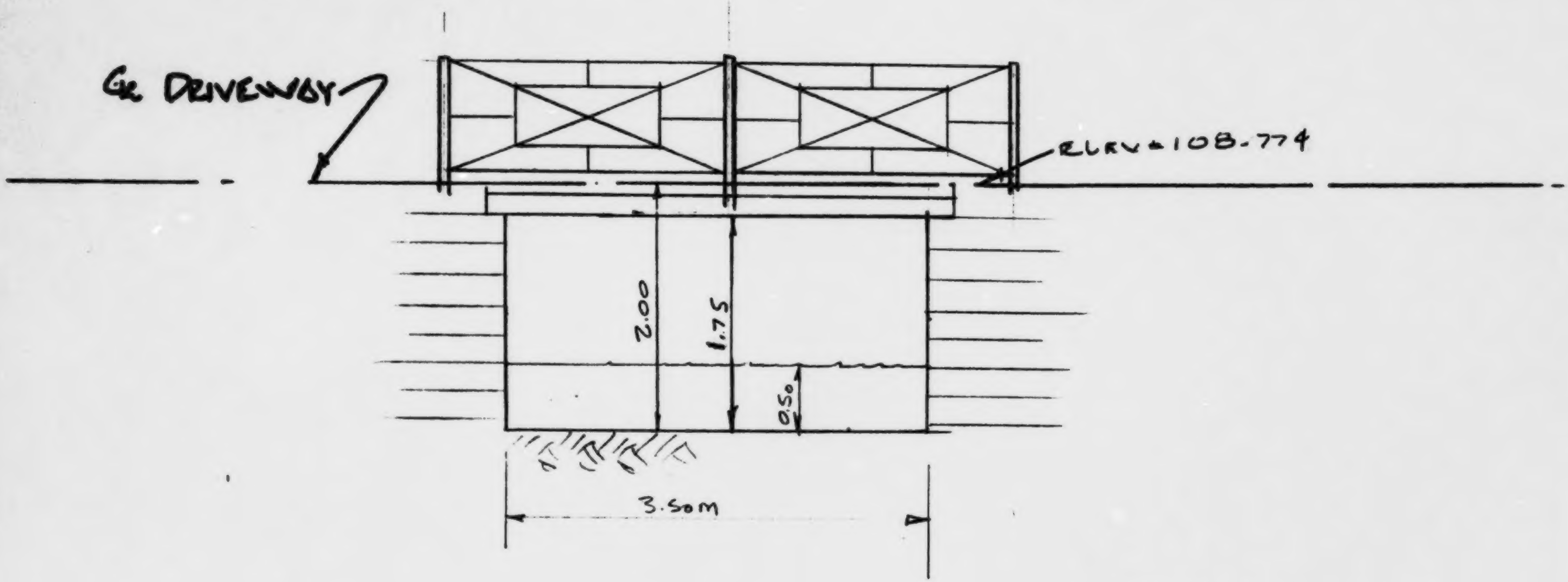


UPSTREAM & DOWNSTREAM

OPENING AREA = 7.2 M²

STRUCTURE B-23

SCALE 1:50

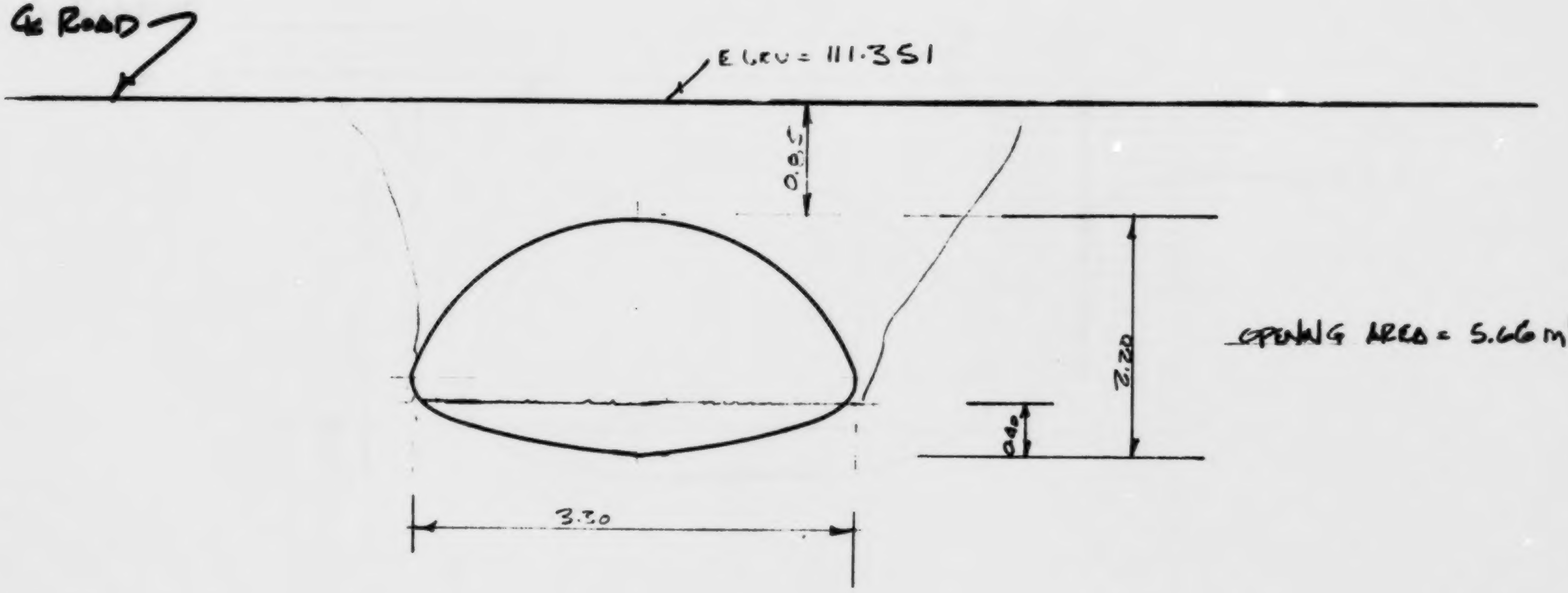


OPENING AREA = 6.1 M²

UPSTREAM SIDE

STRUCTURE B-24

SCALE 1:50

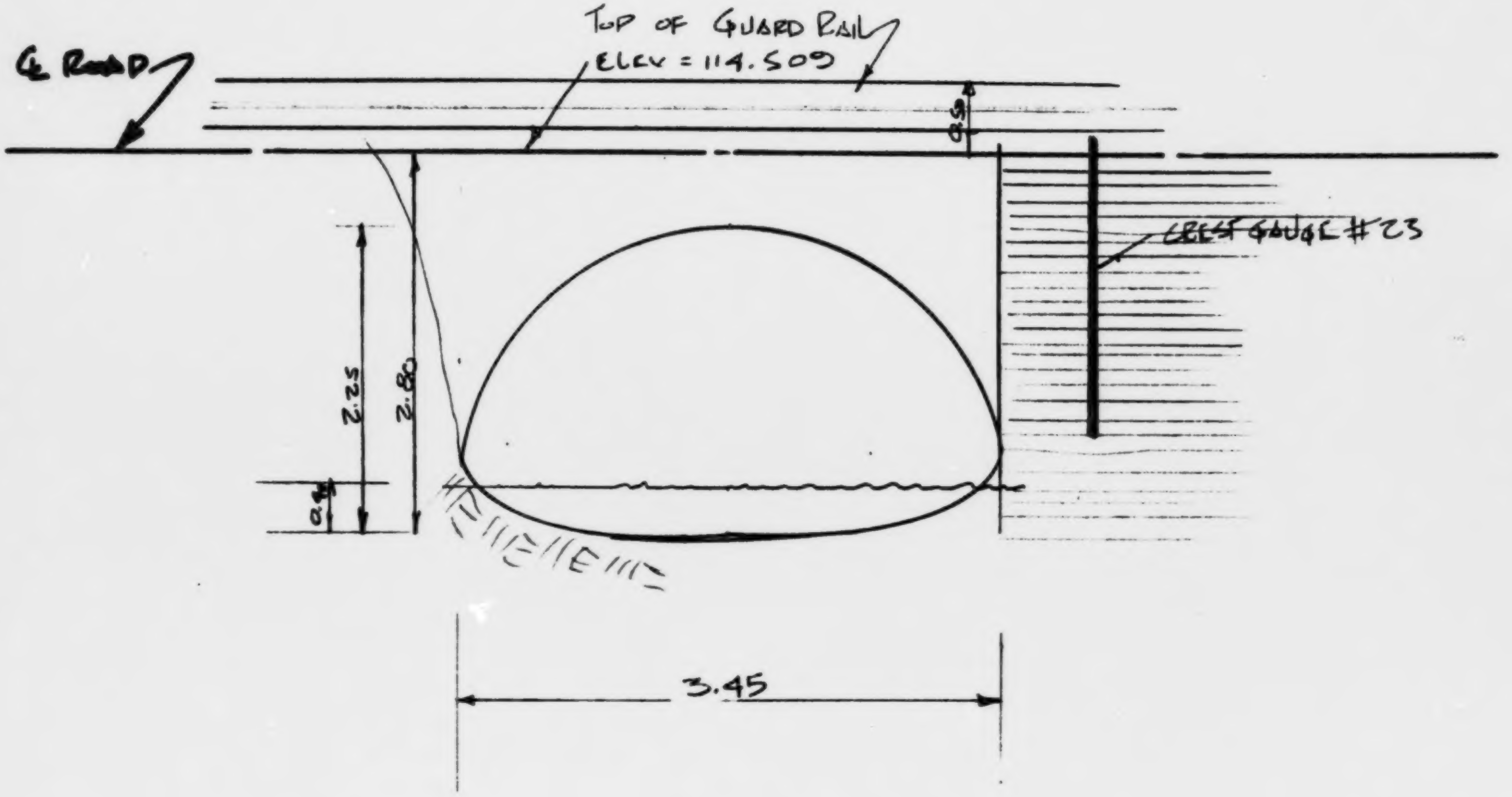


OPENING AREA = 5.66 m²

UPSTREAM & DOWNSTREAM

STRUCTURE B-25

SCALE 1:50

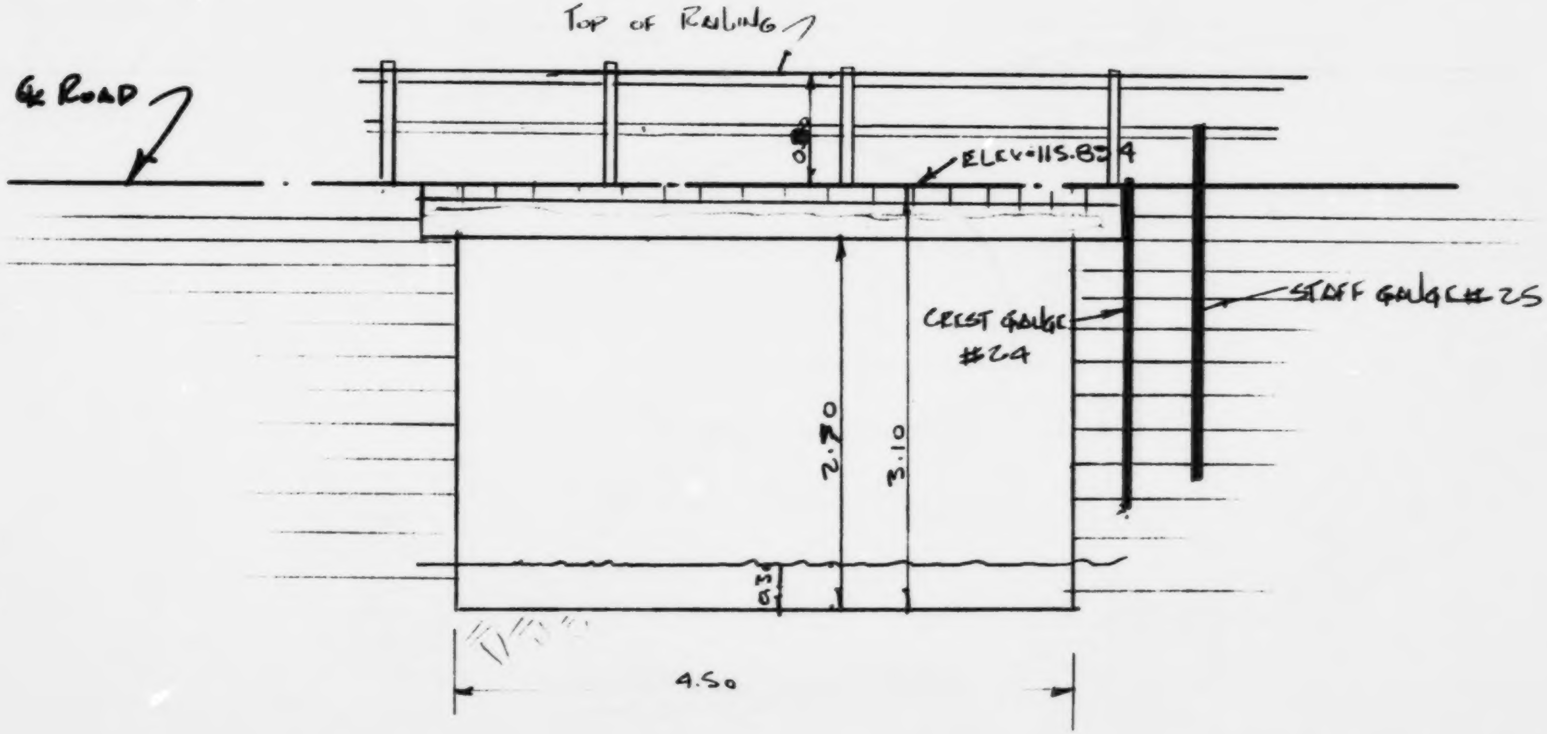


UPSTREAM SIDE

OPENING AREA = 6.9 M^2

STRUCTURE B-26

SCALE 1:50

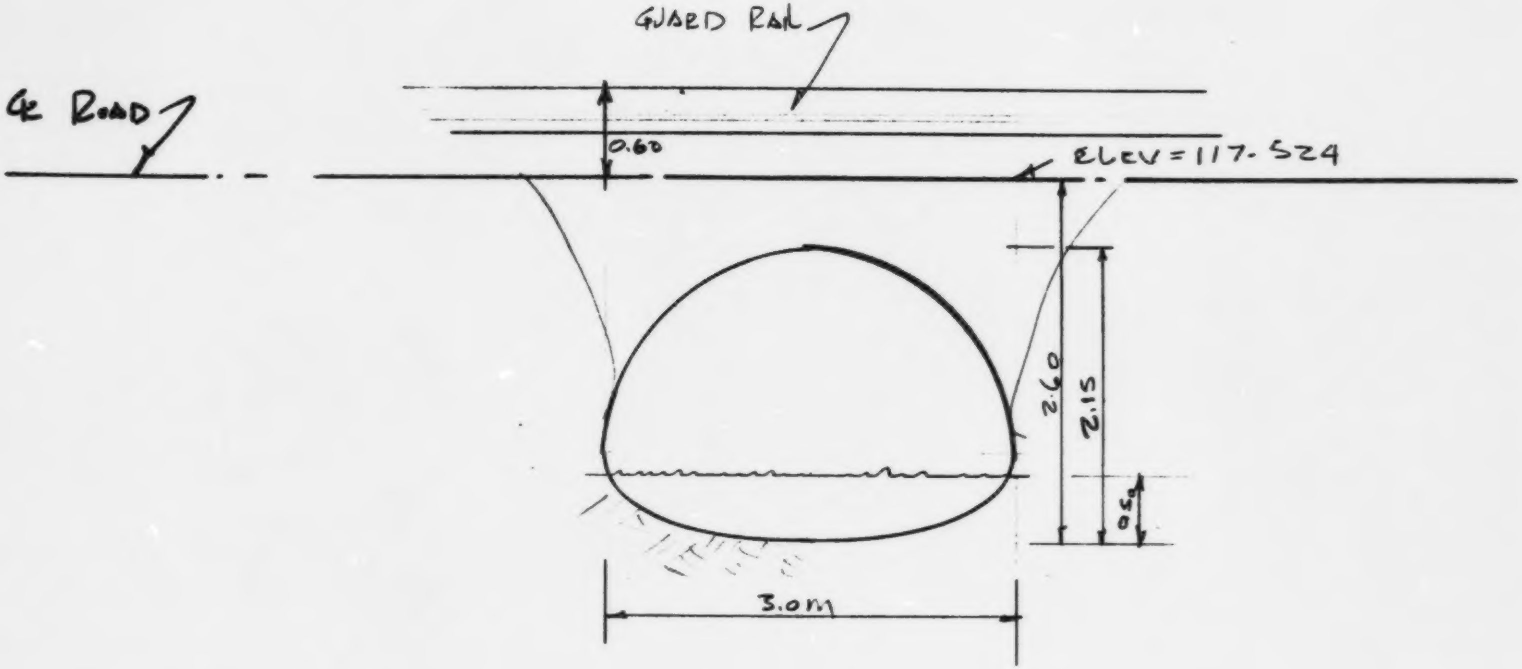


OPENING AREA = 12.2 M²

UPSTREAM SIDE

STRUCTURE B-27

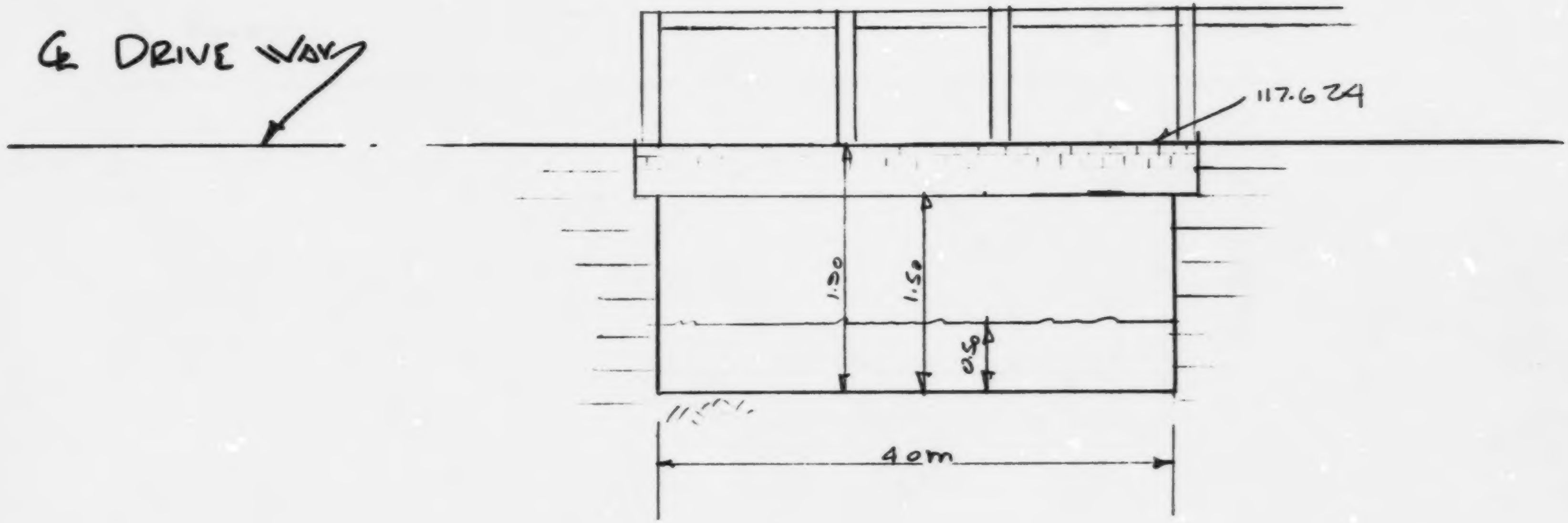
scale 1:50



UPSTREAM & DOWNSTREAM

OPENING AREA = 4.85 m²

STRUCTURE B-28

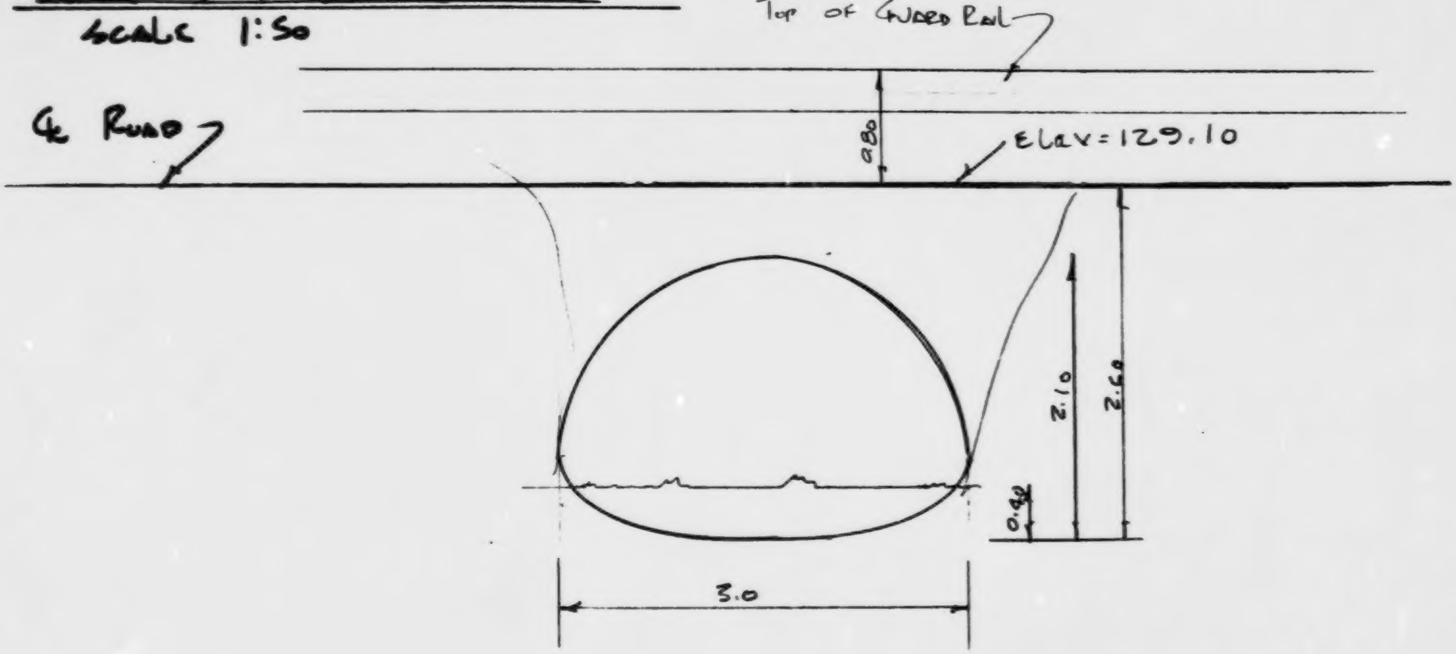


UPSTREAM SIDE

OPENING AREA = 6.0 m^2

STRUCTURE B-29

SCALE 1:50

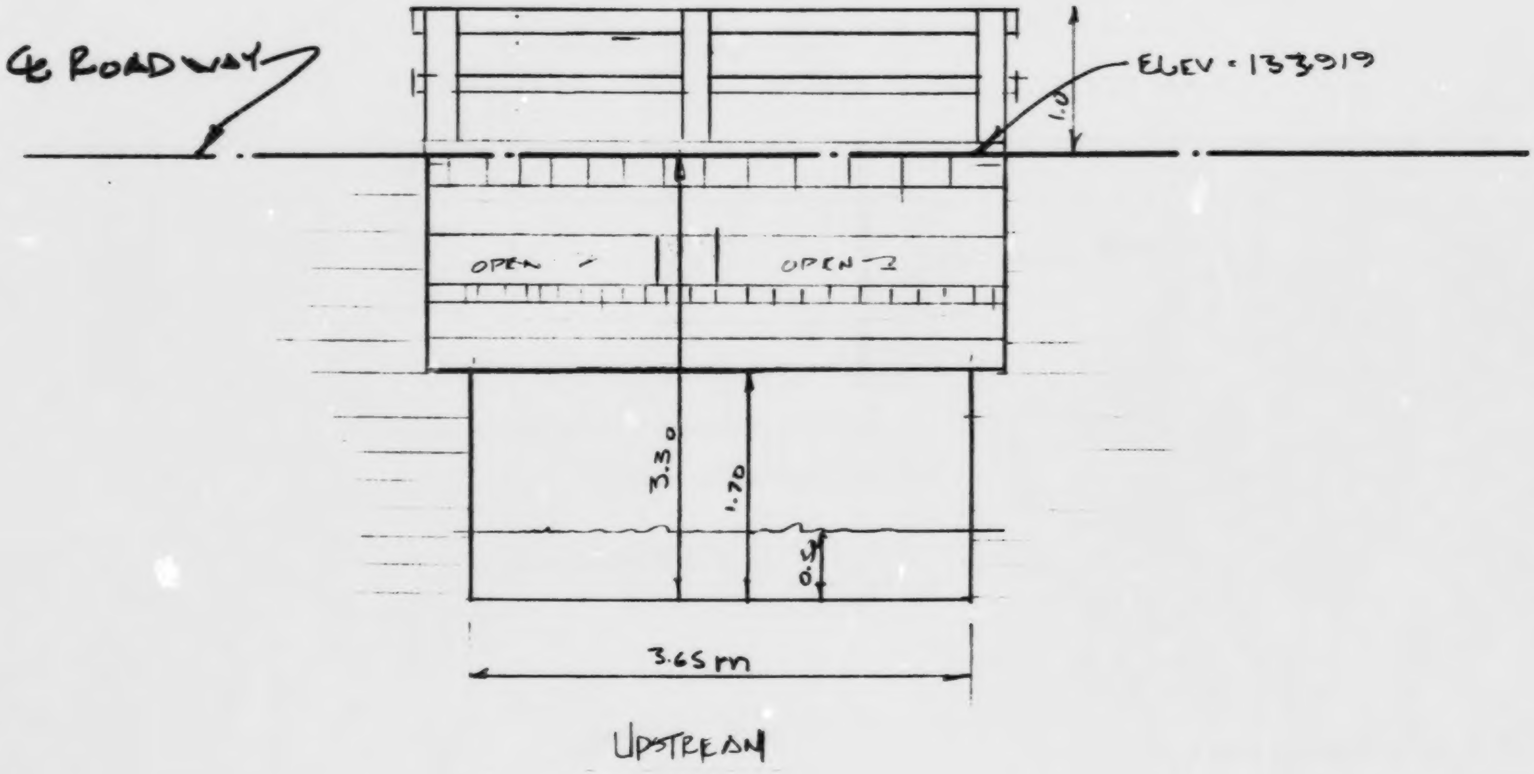


UPSTREAM & DOWNSTREAM

OPENING AREA= 4.8M²

STRUCTURE B-30

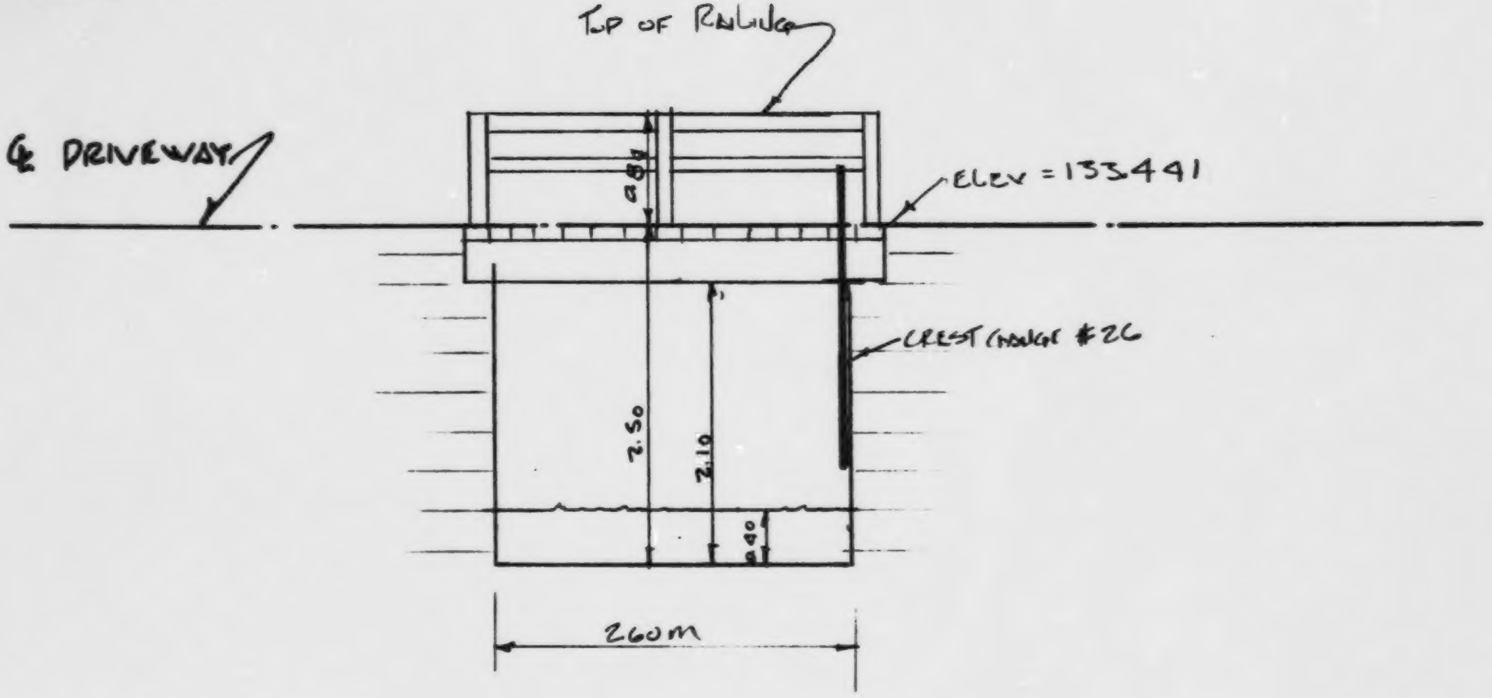
SCALE 1:50



OPENING AREA = 6.2 M²

STRUCTURE B.31

scale 1:50

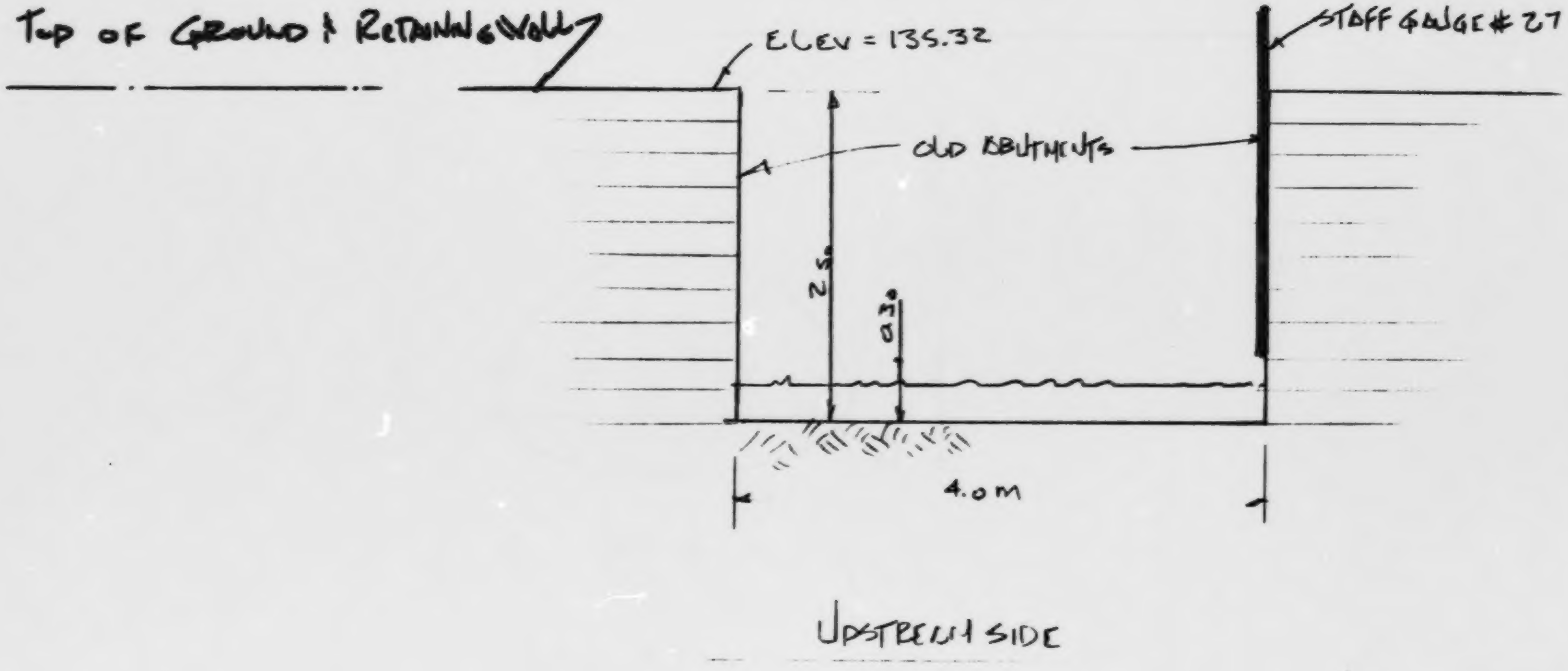


UPSTREAM SIDE

OPENING AREA = 5.5 M²

STRUCTURE B-32

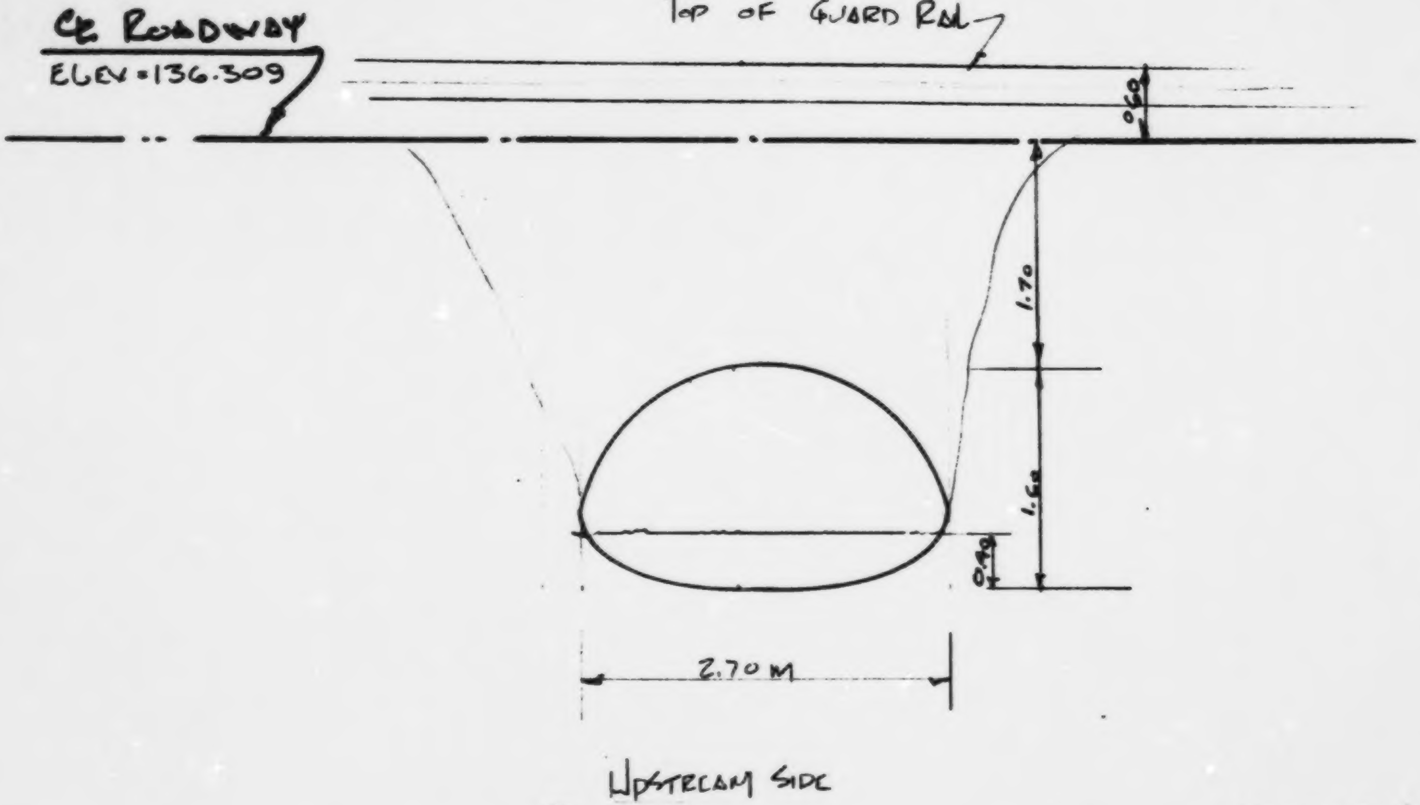
SCALE 1:50



RESTRITION AREA: 10 m^2

STRUCTURE B-33

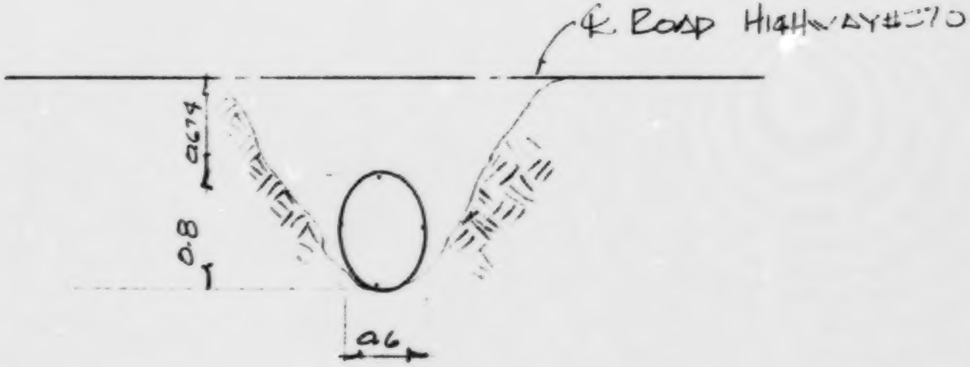
SCALE 1:50



OPENING AREA = 3.4 m²

STRUCTURE. B-34

SCALE 1:50.



UPSTREAM SIDE.

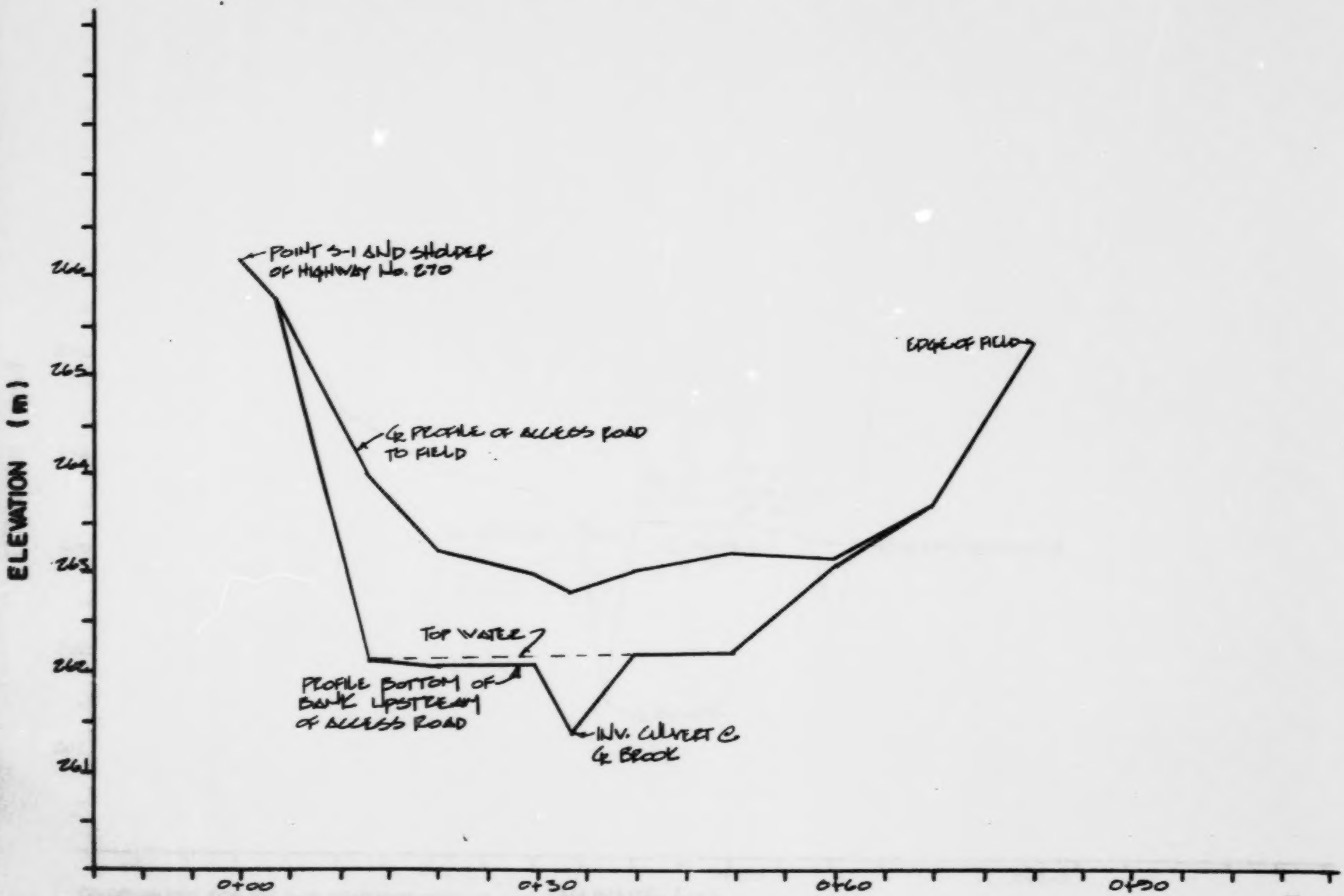
OPENING AREA = 0.38 M²

SECTION D

CROSS SECTIONS

(All units shown are in metres)

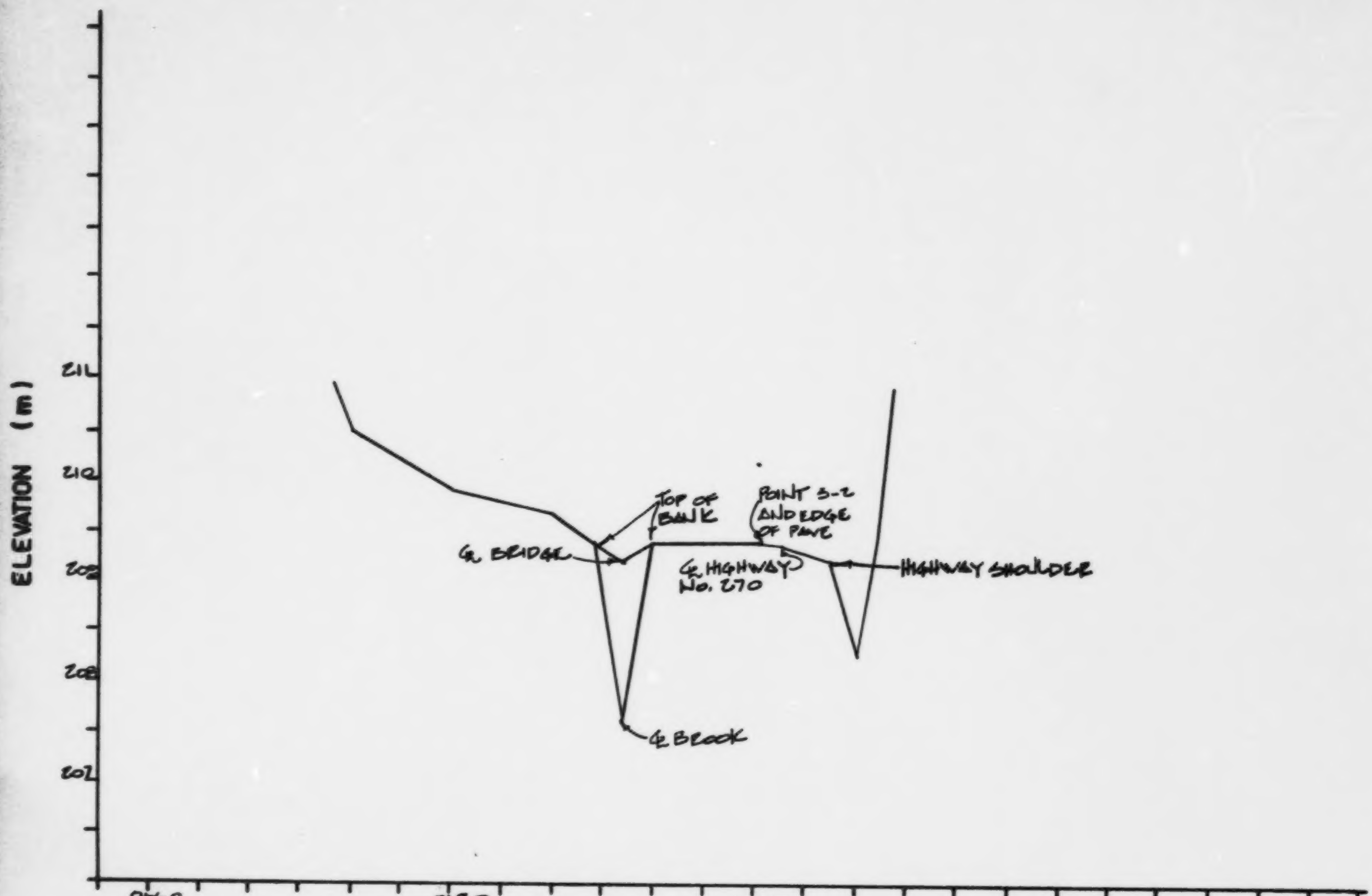
(All cross-section are plotted
looking downstream)



CO-ORDINATES FOR STA.0+00: NORTHING:953,763.104
EASTING :283,250.756

AZ=327.703°

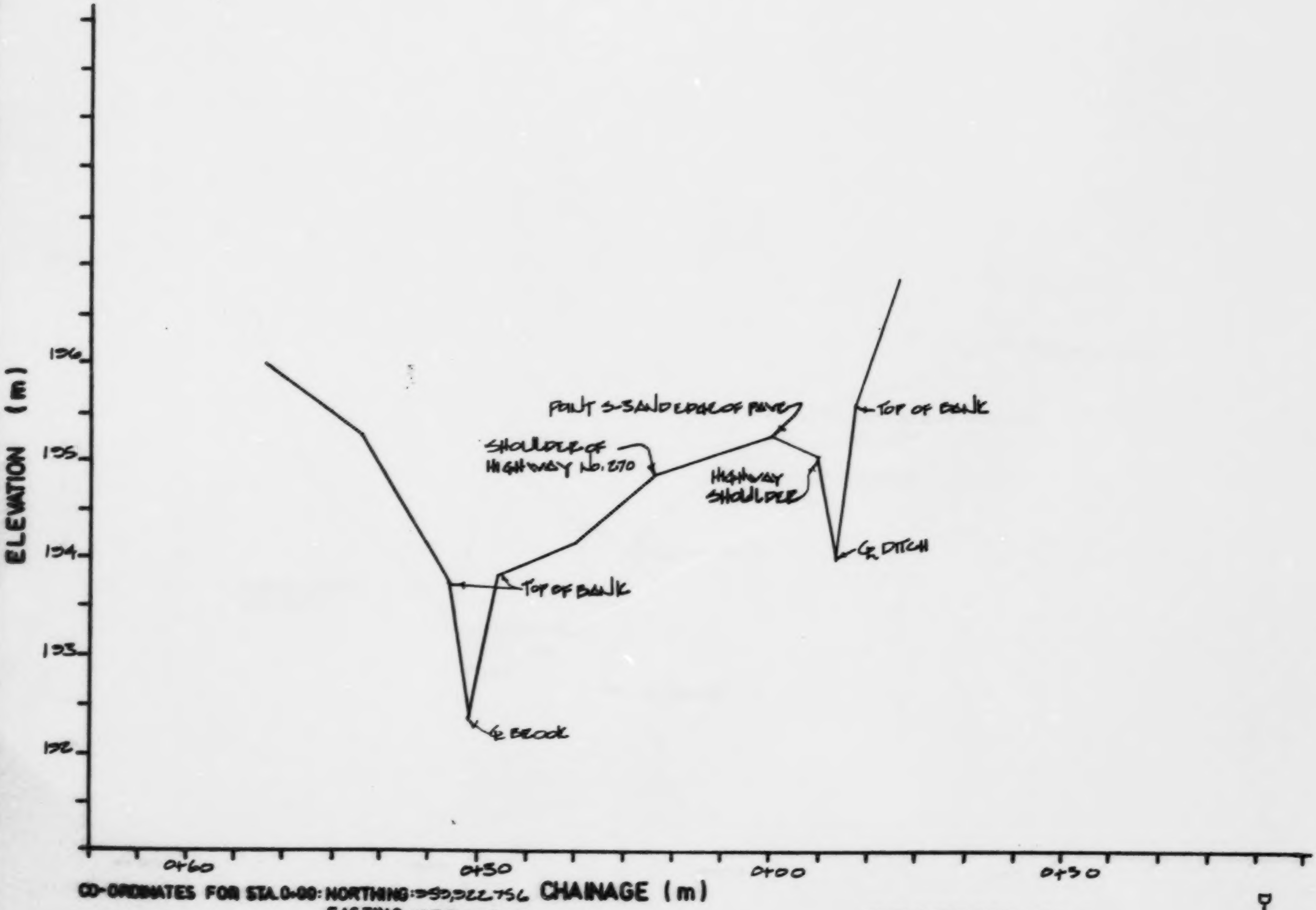
SECTION S-1



CO-ORDINATES FOR STA.0+00: NORTHING:959,759.002
EASTING :288,960.736

AZ=187.511°

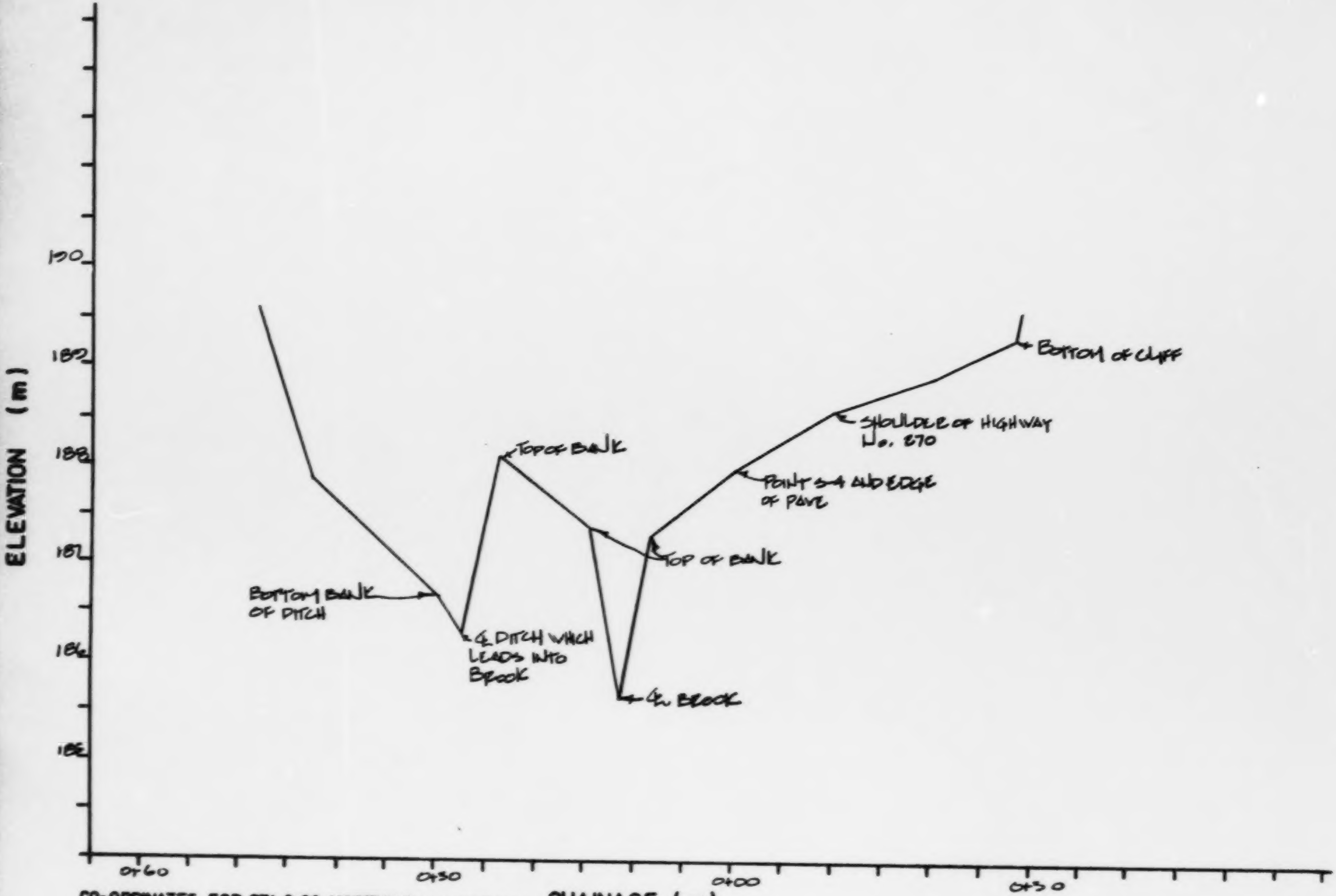
SECTION S-2



CO-ORDINATES FOR STA.0+00: NORTHING: 553,522.756
EASTING : 288,656.177

AZ=276.578°

SECTION S-3



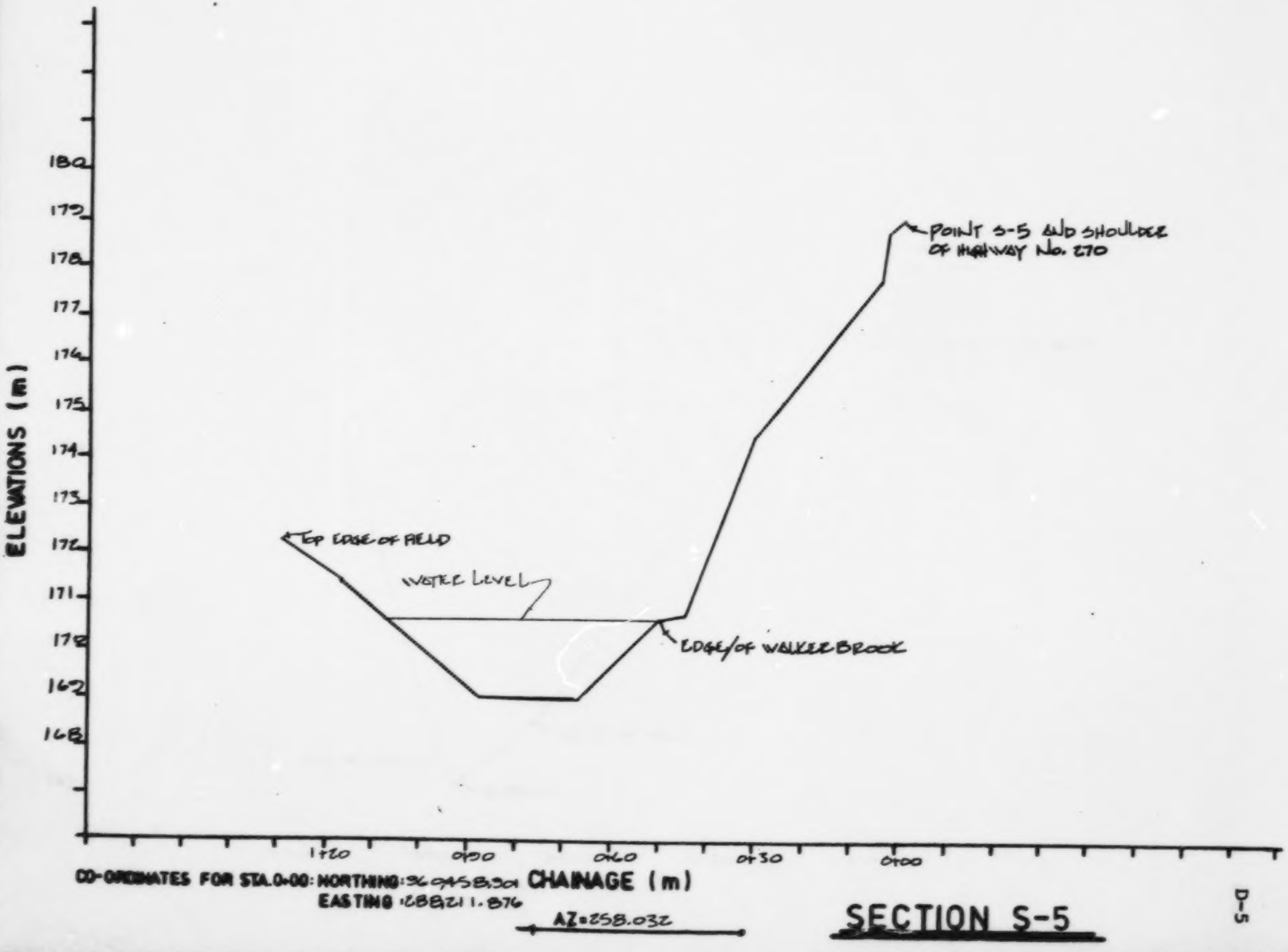
CO-ORDINATES FOR STA.0+00: NORTHING: 569,108.856
EASTING : 288,582.854

CHAINAGE (m)

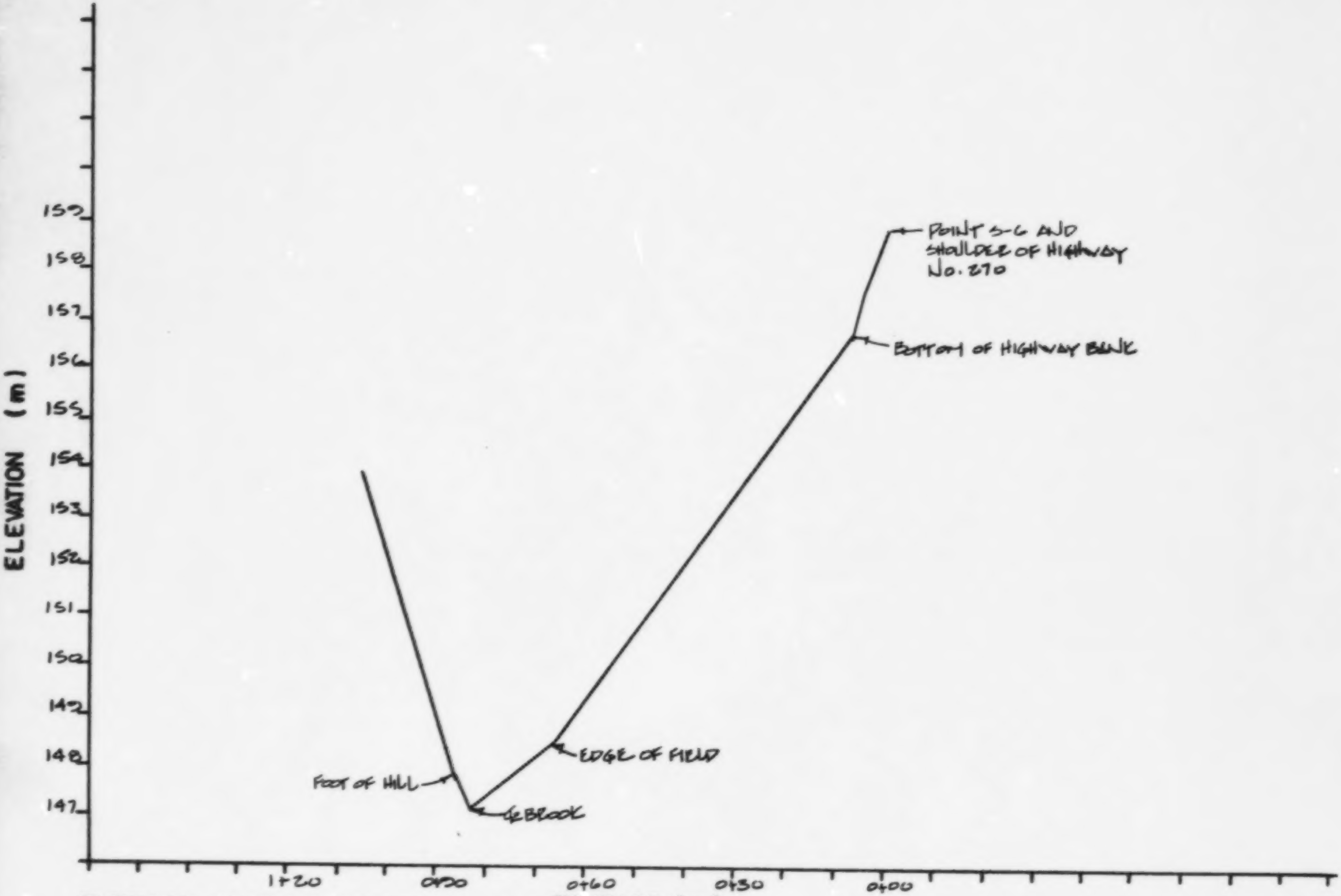
AZ=203.075°

SECTION S-4

D-4


ELEVATIONS (m)
180
179
178
177
176
175
174
173
172
171
170
169
168
POINT S-5 AND SHOULDER OF HIGHWAY No. 270
TOP EDGE OF FIELD
WATER LEVEL
EDGE OF WALKER BROOK
1+20
0+90
0+60
0+30
0+00
CO-ORDINATES FOR STA.0+00: NORTHING:569458.301
EASTING :288211.876
CHAINAGE (m)
AZ=258.032

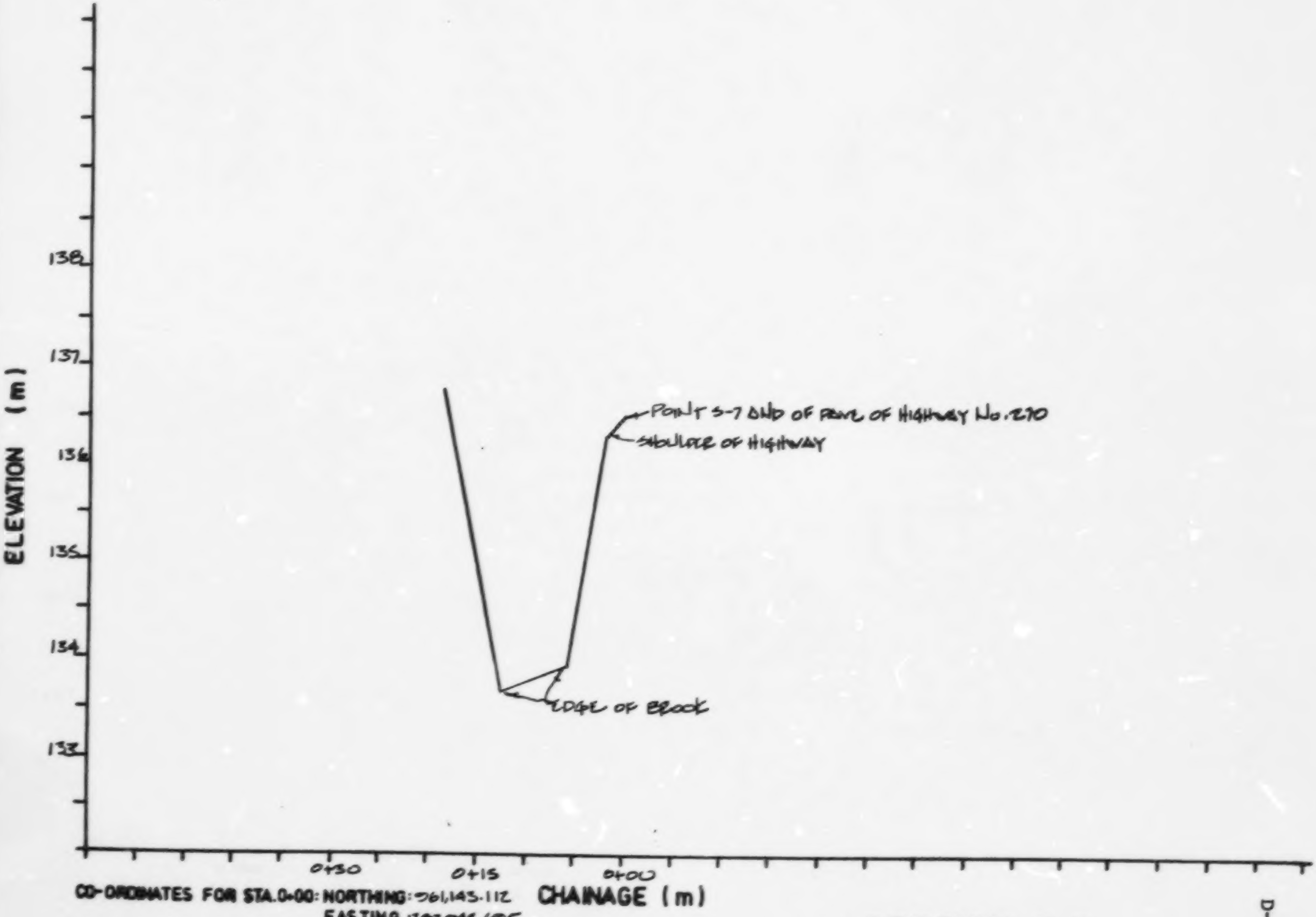
SECTION S-5



CO-ORDINATES FOR STA.0+00: NORTHING:961,000.885
EASTING :287,657.063

AZ=201.284°

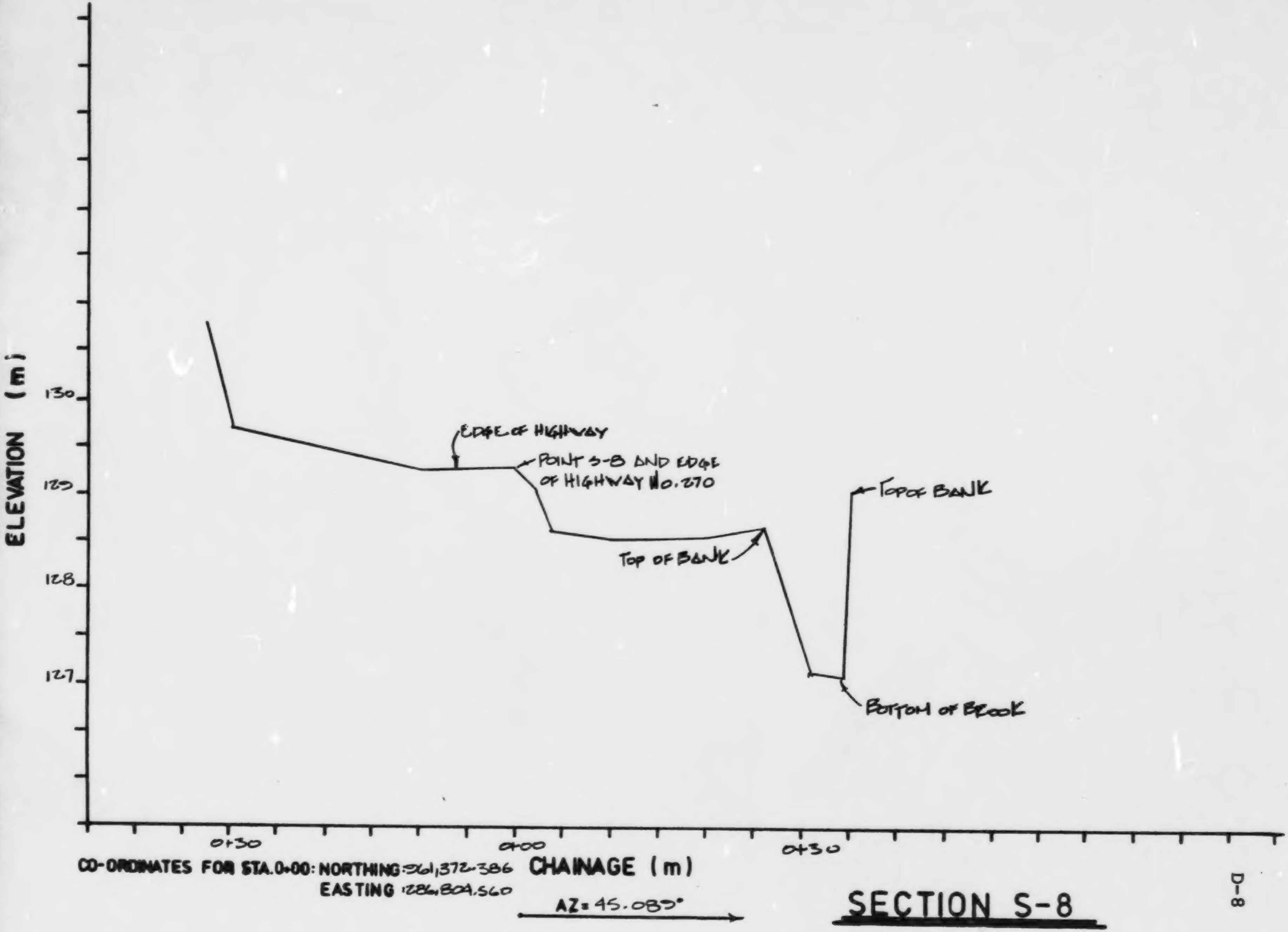
SECTION S-6



CO-ORDINATES FOR STA. 0+00: NORTHING: 561,145.112
EASTING: 207,042.605

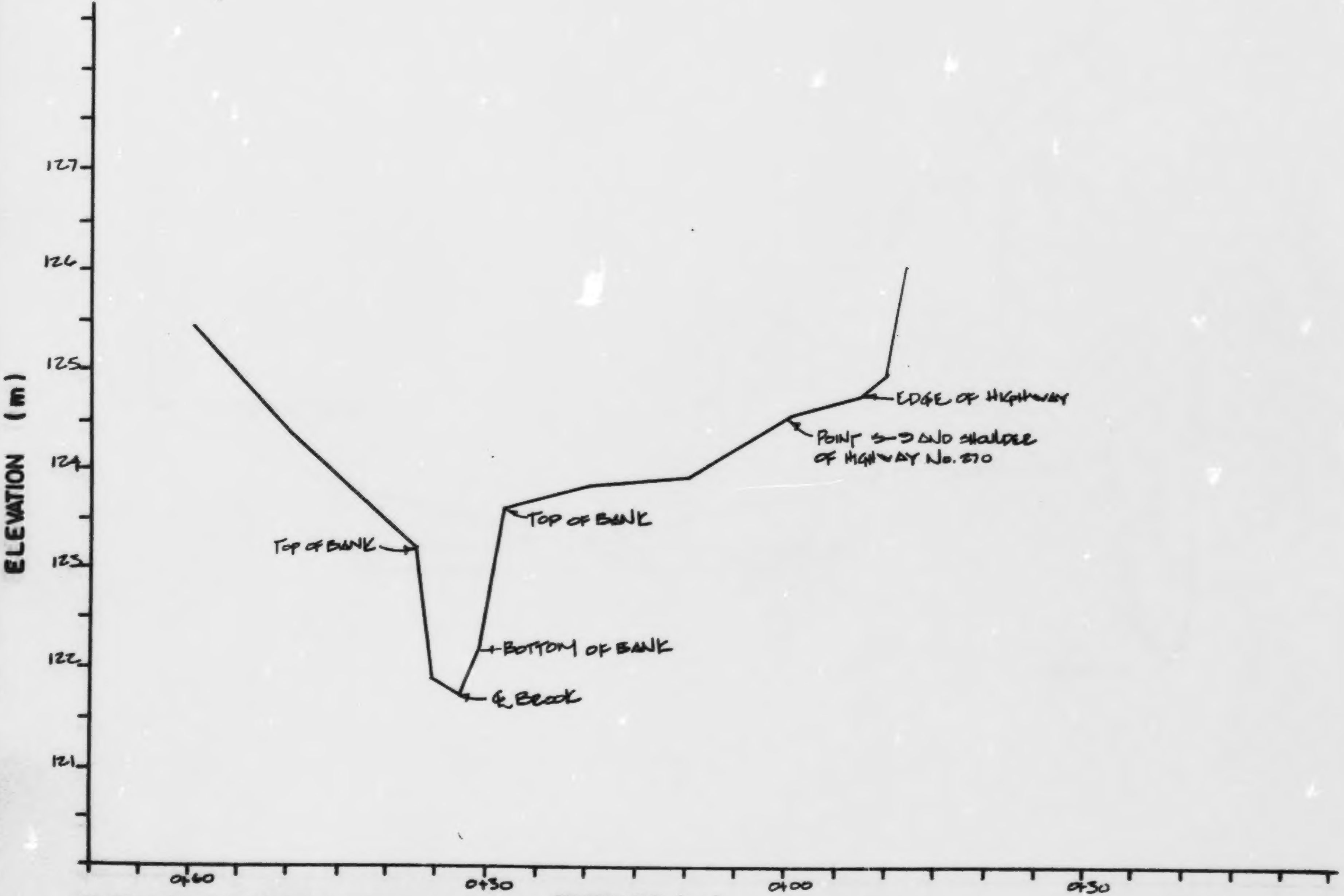
AZ=219.551°

SECTION S-7



CO-ORDINATES FOR STA.0+00: NORTHING 561,372.386
EASTING 286,804.560

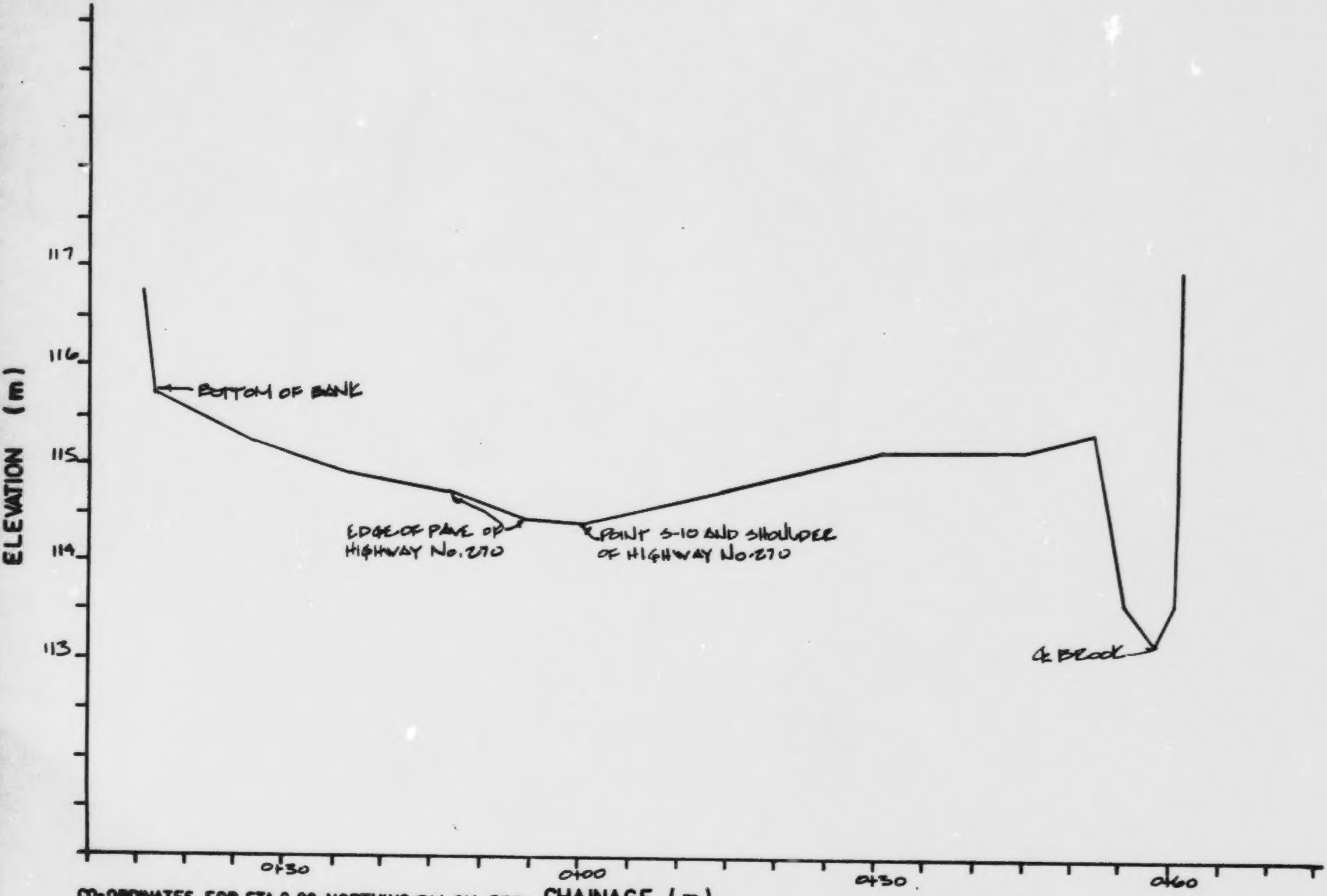
SECTION S-8



CO-ORDINATES FOR STA.0+00: NORTHING: 561,602.405
EASTING: 286,555.818

AZ=232.177°

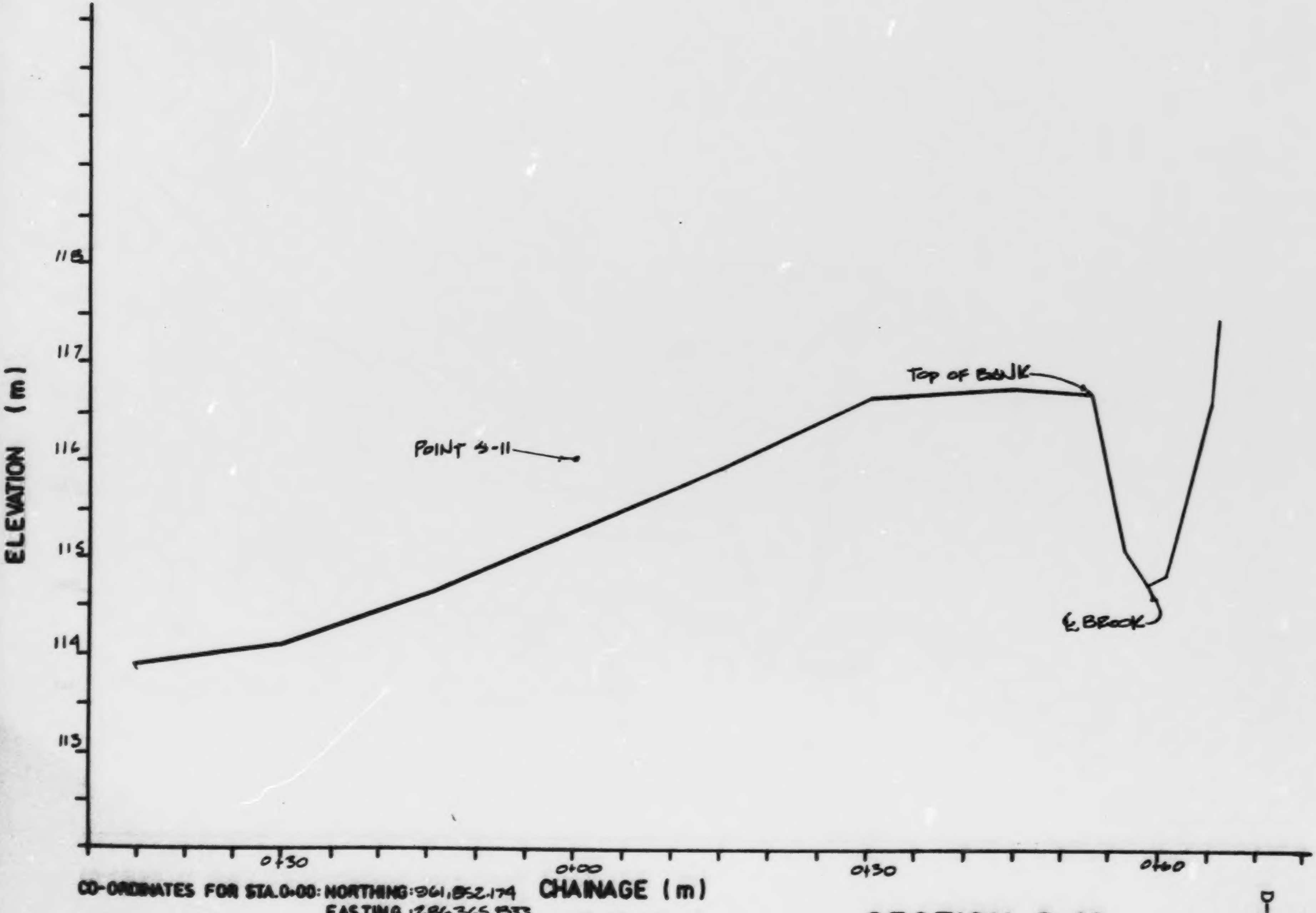
SECTION S-9



CO-ORDINATES FOR STA.0+00: NORTHING:961,816.325
EASTING :286,653.403

AZ=44.666°

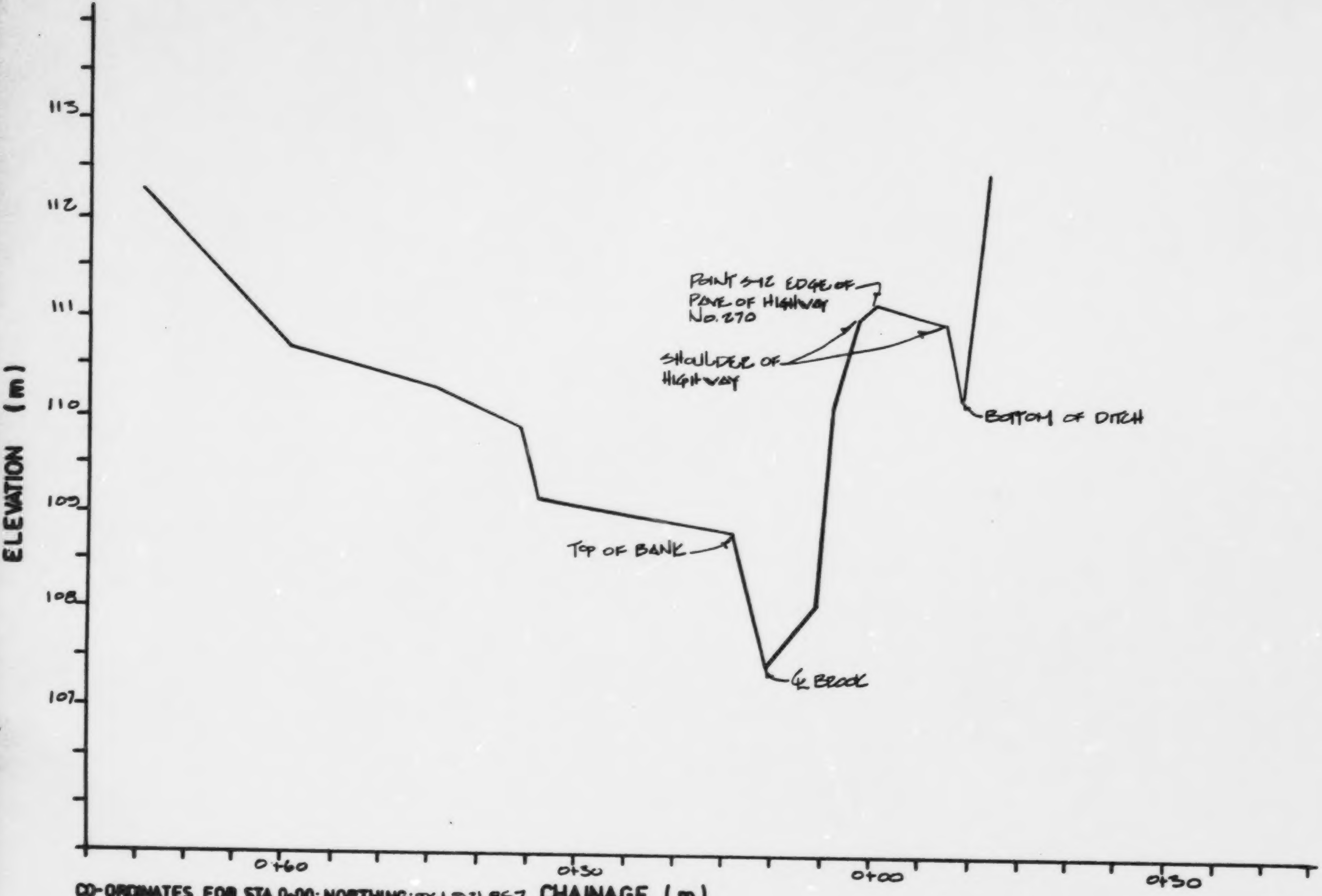
SECTION S-10



CO-ORDINATES FOR STA.0+00: NORTHING:961,852.174
EASTING :286,365.833

AZ=103.333°

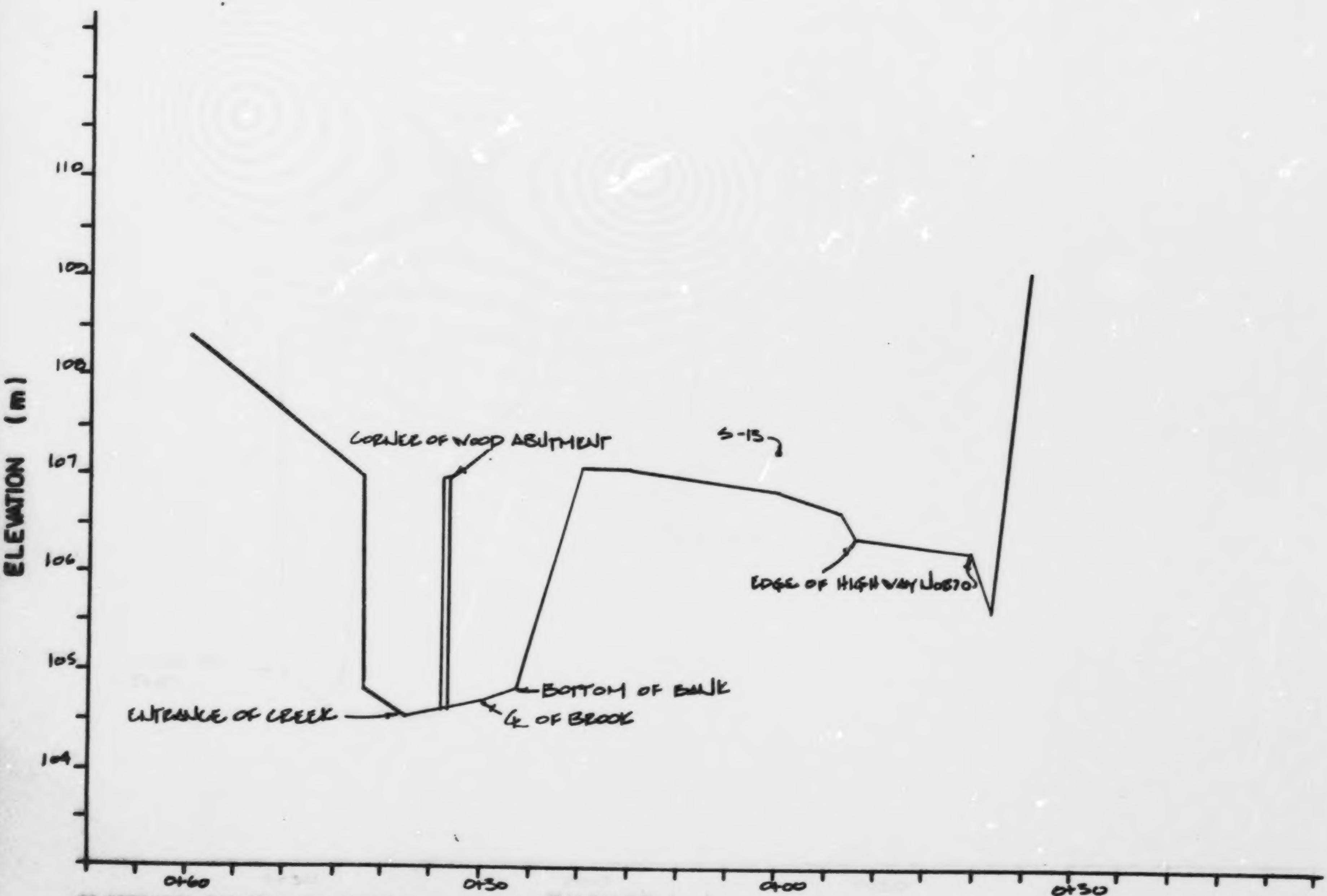
SECTION S-11



CO-ORDINATES FOR STA.0+00: NORTHING: 561,521.857
EASTING: 286,071.480

AZ= 176.662°

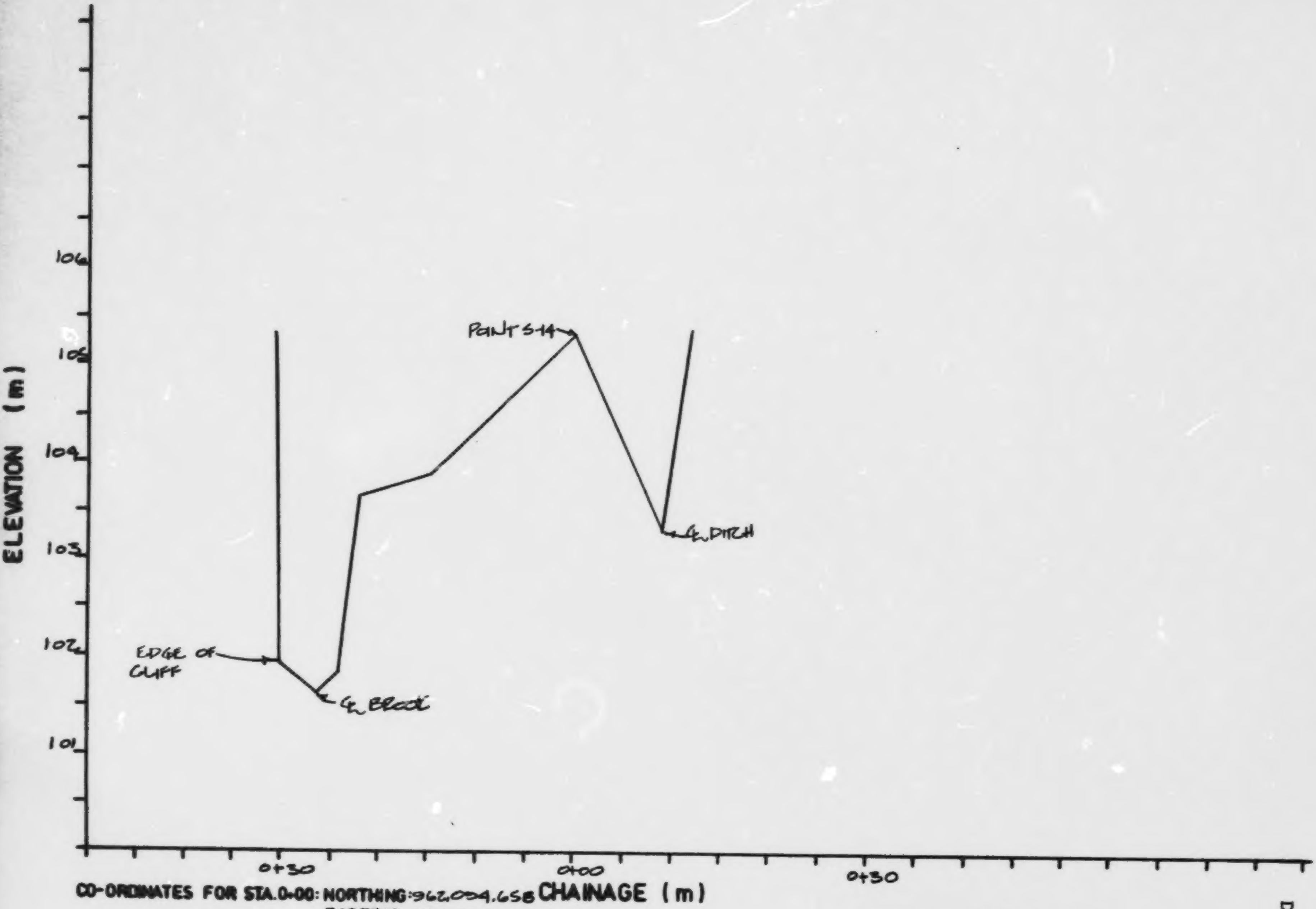
SECTION S-12



CO-ORDINATES FOR STA.0+00: NORTHING:561,573.825
EASTING :285,837.537

AZ=170.776°

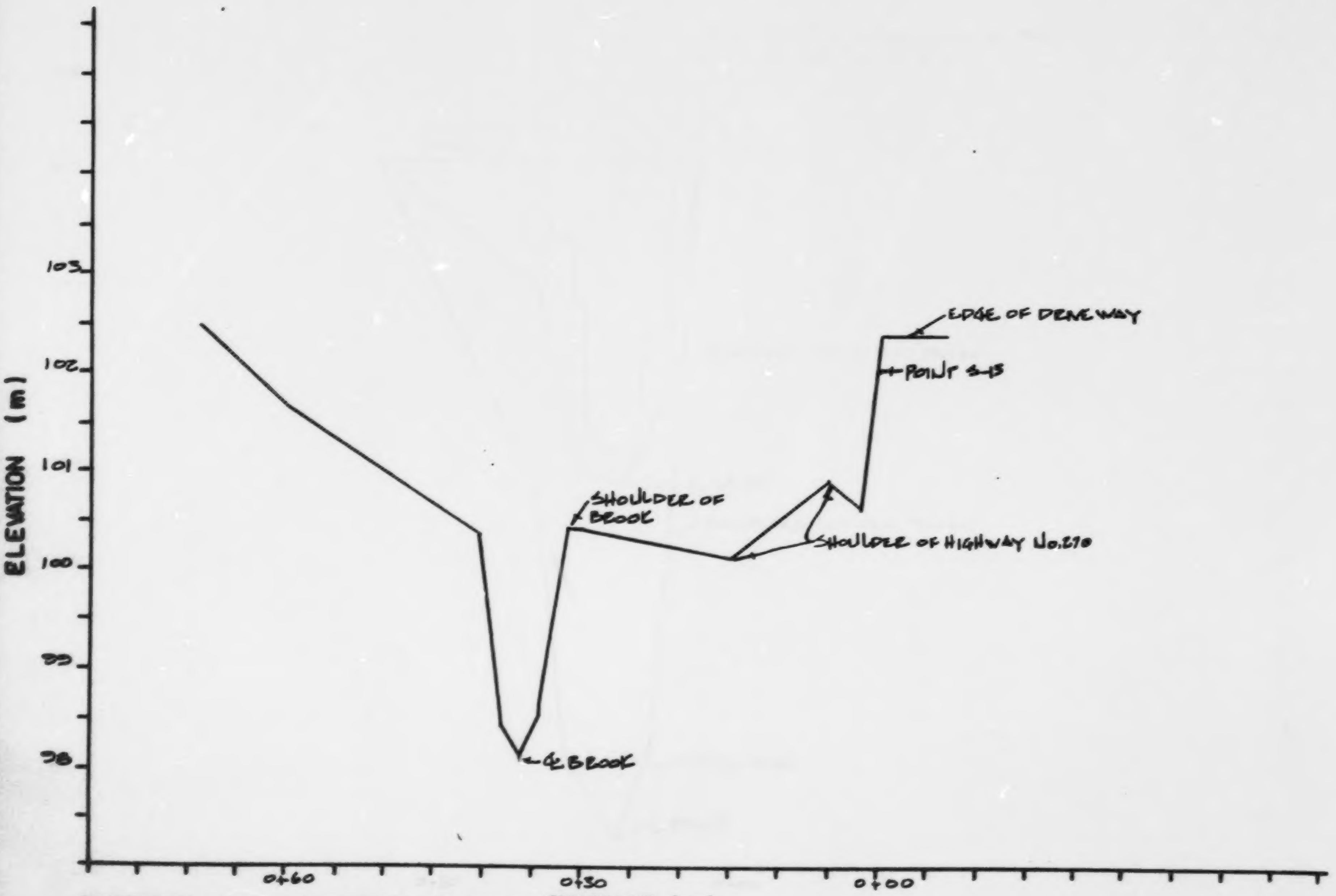
SECTION S-13



CO-ORDINATES FOR STA.0+00: NORTHING:962,054.658
EASTING 286,834.320

AZ=245.109°

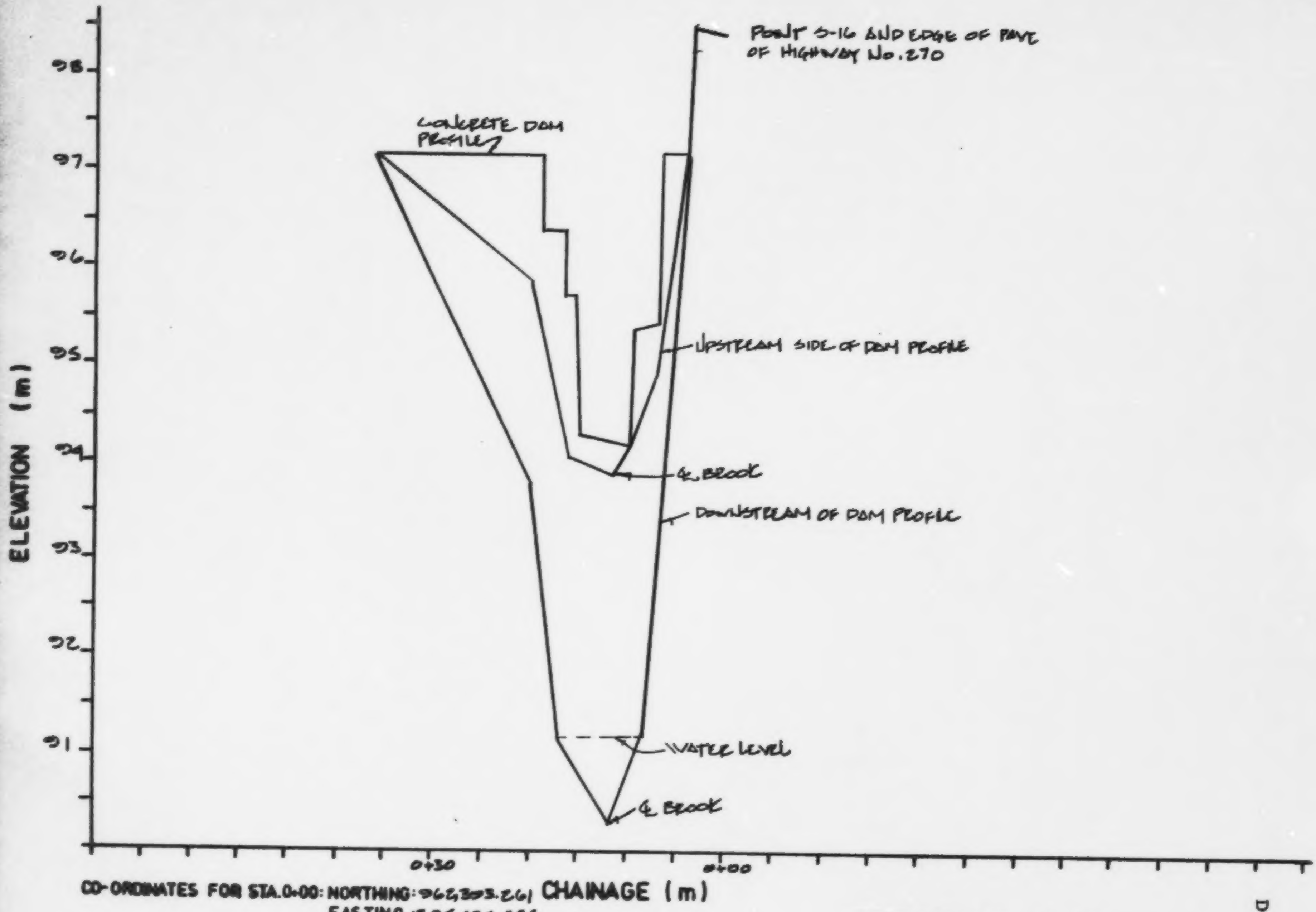
SECTION S-14



CO-ORDINATES FOR STA.0+00: NORTHING: 362,308.720
EASTING: 285,810.617

AZ=242.678°

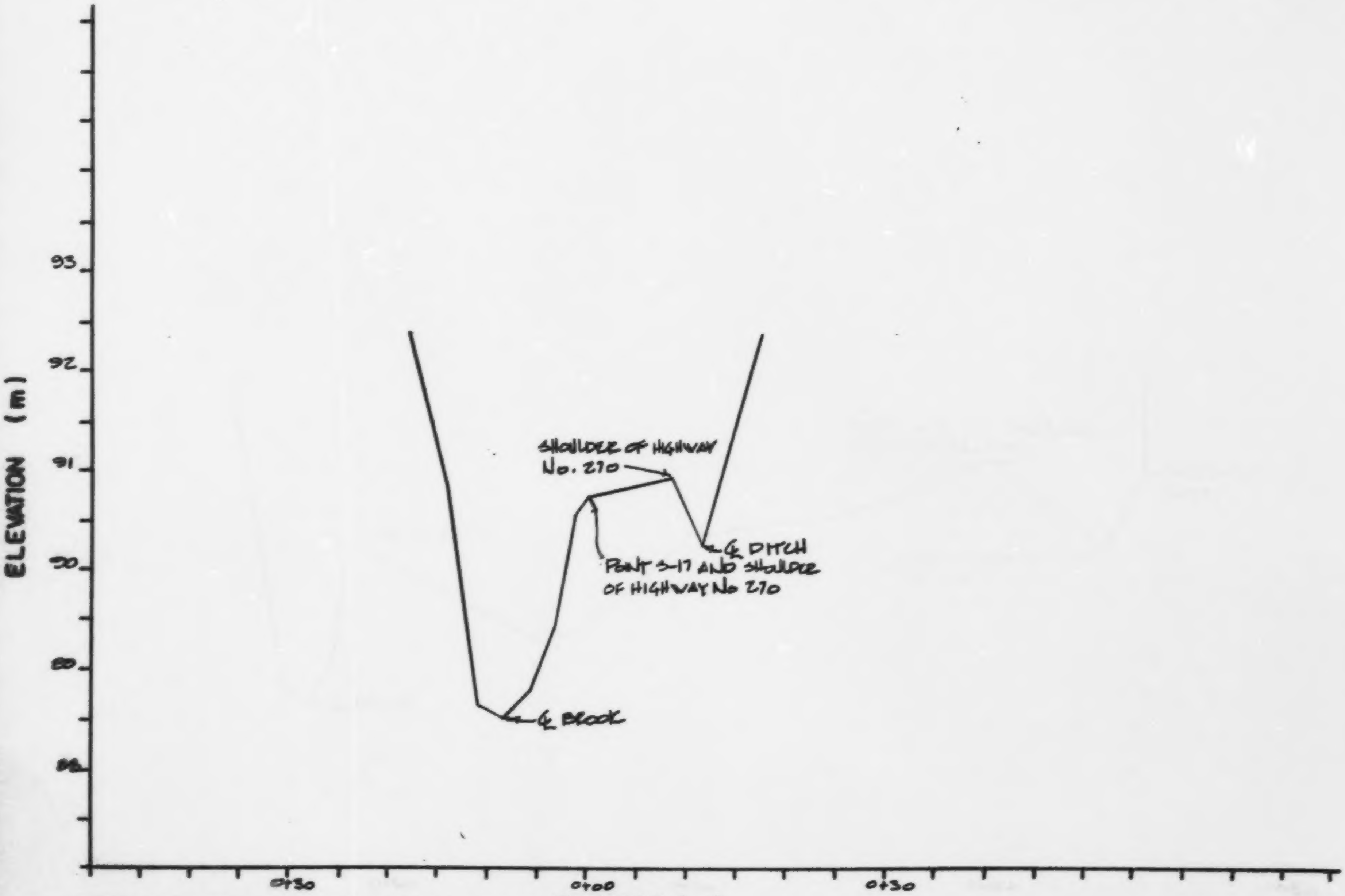
SECTION S-15


ELEVATION (m)
98
97
96
95
94
93
92
91
CONCRETE DAM PROFILE
POINT S-16 AND EDGE OF PAVE OF HIGHWAY No.270
UPSTREAM SIDE OF DAM PROFILE
℄ BROOK
DOWNSTREAM OF DAM PROFILE
WATER LEVEL
℄ BROOK
0+30
0+00
CHAINAGE (m)

CO-ORDINATES FOR STA.0+00: NORTHING: 962,303.261
EASTING: 285,434.455

AZ = 234.881°

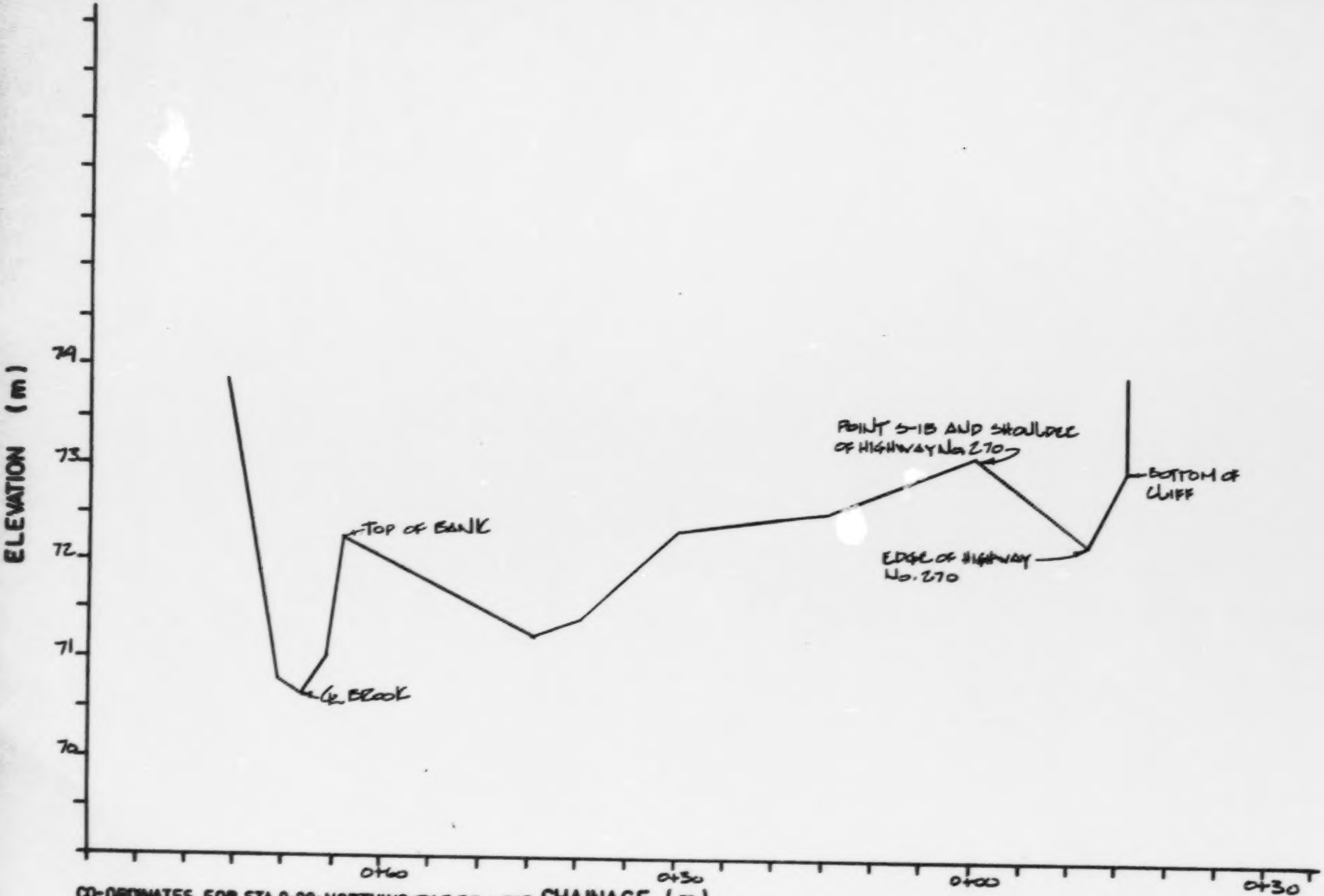
SECTION S-16



CO-ORDINATES FOR STA.0+00: NORTHING=5262632.365
EASTING =285123.673

AZ=260.144°

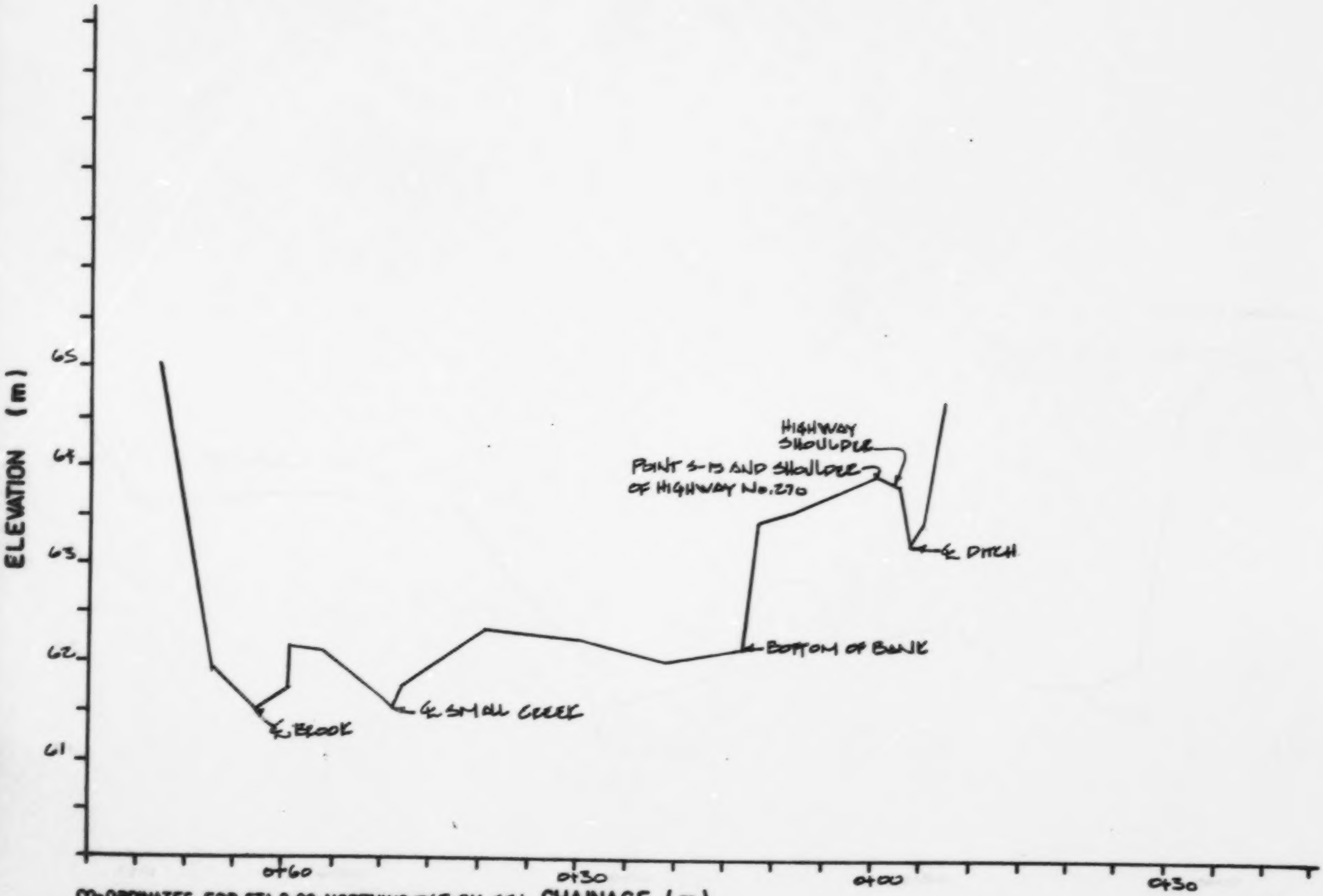
SECTION S-17



CO-ORDINATES FOR STA.0+00: NORTHING: 963,330.373
EASTING : 284,959.702

AZ = 274.384°

SECTION S-18

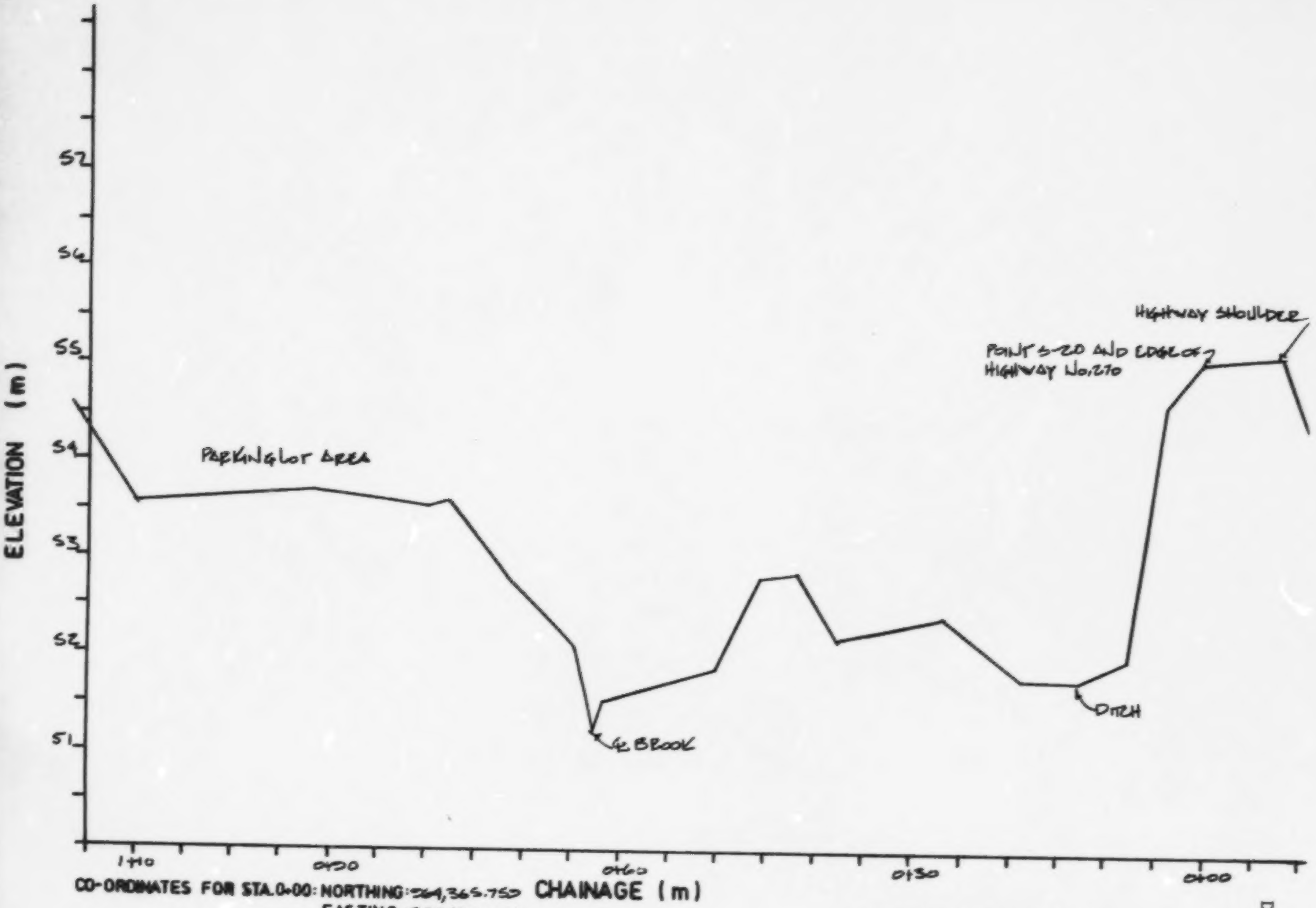


CO-ORDINATES FOR STA.0+00: NORTHING=563,816.551
EASTING =285,178.734

CHAINAGE (m)

AZ=245.724°

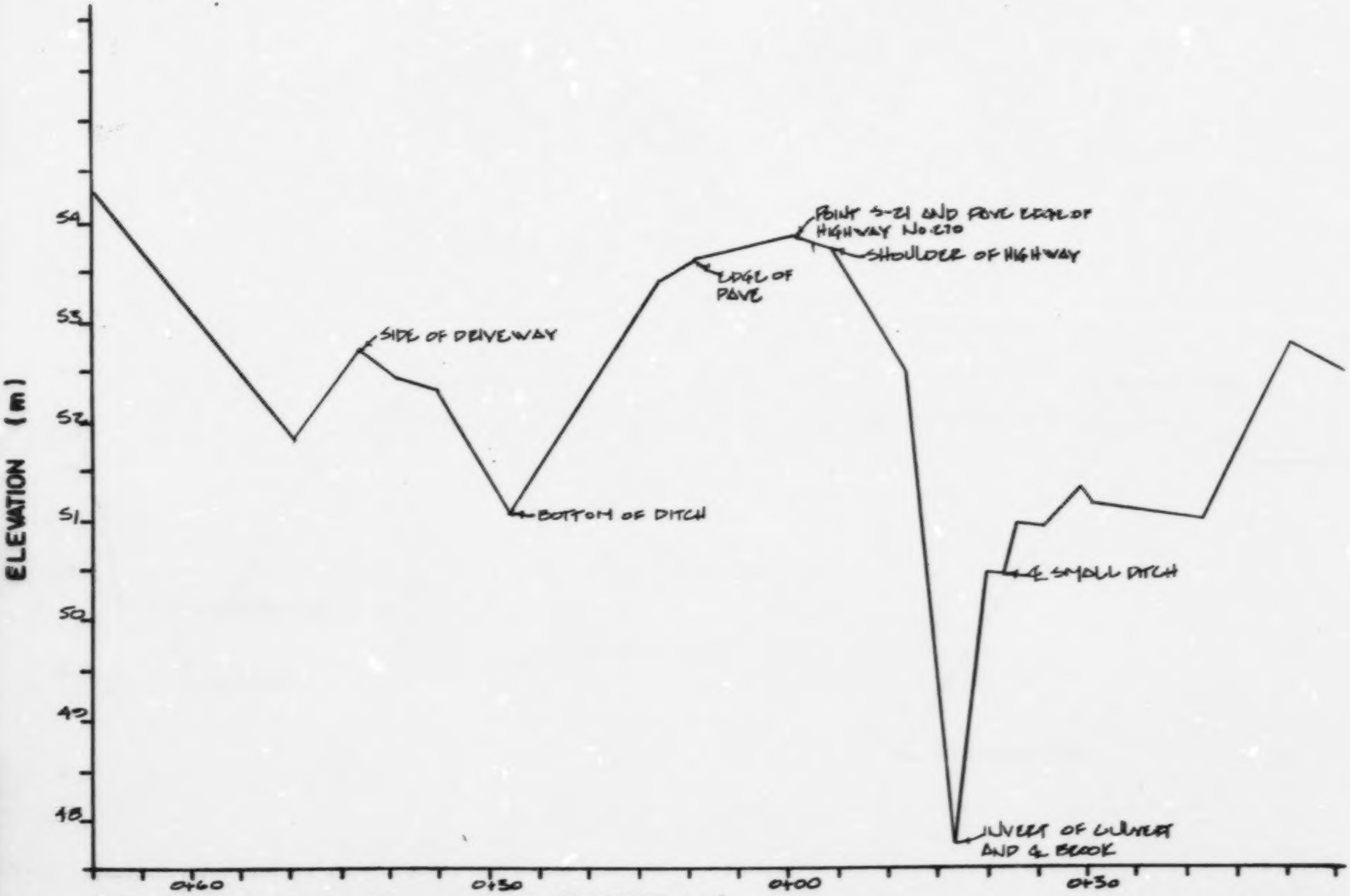
SECTION S-19



CO-ORDINATES FOR STA.0+00: NORTHING: 564,365.750
EASTING : 285,188.021

AZ= 313.670°

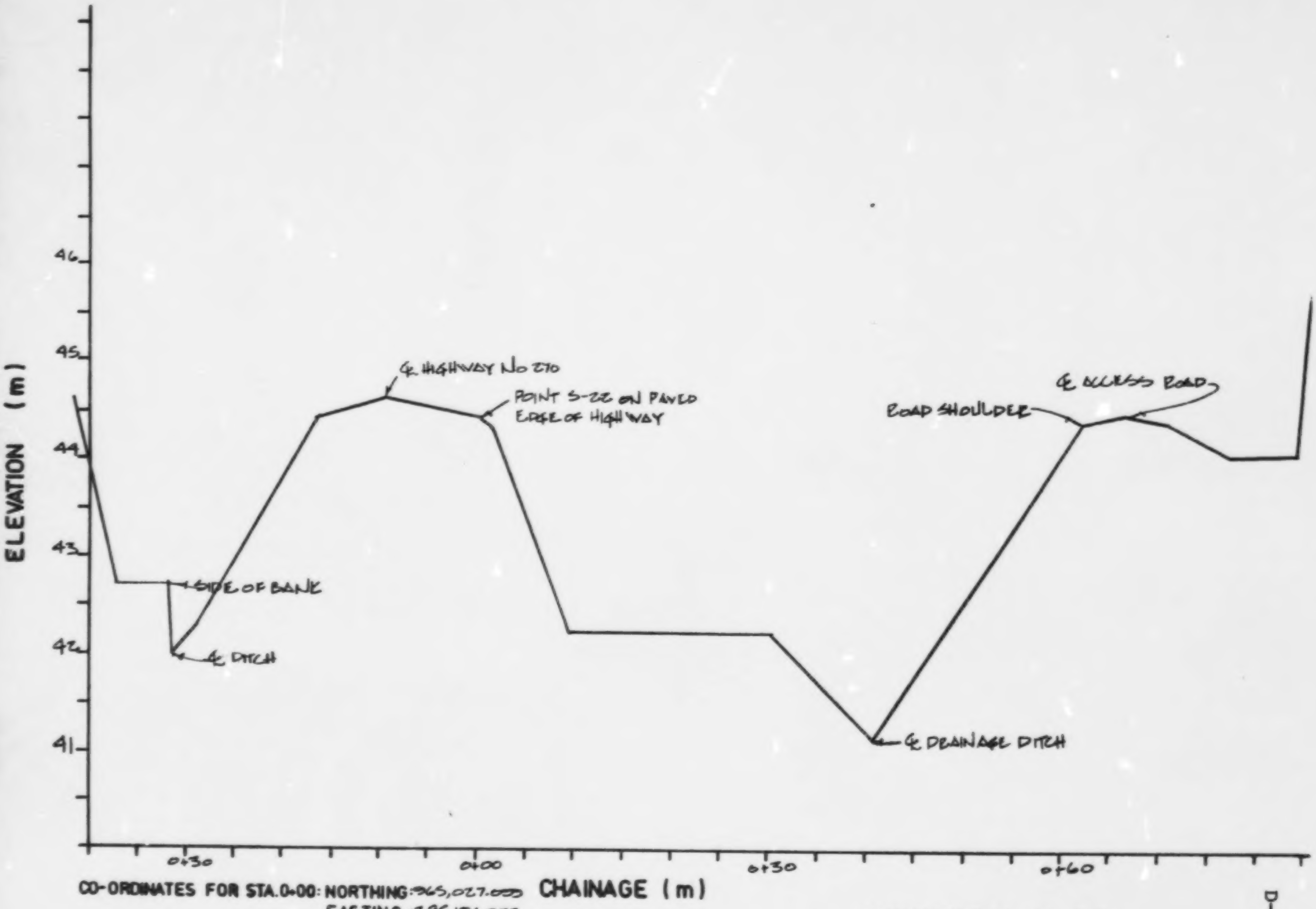
SECTION S-20



CO-ORDINATES FOR STA.0+00: NORTHING: 964,601.318
EASTING: 285,162.123

AZ = 97.160°

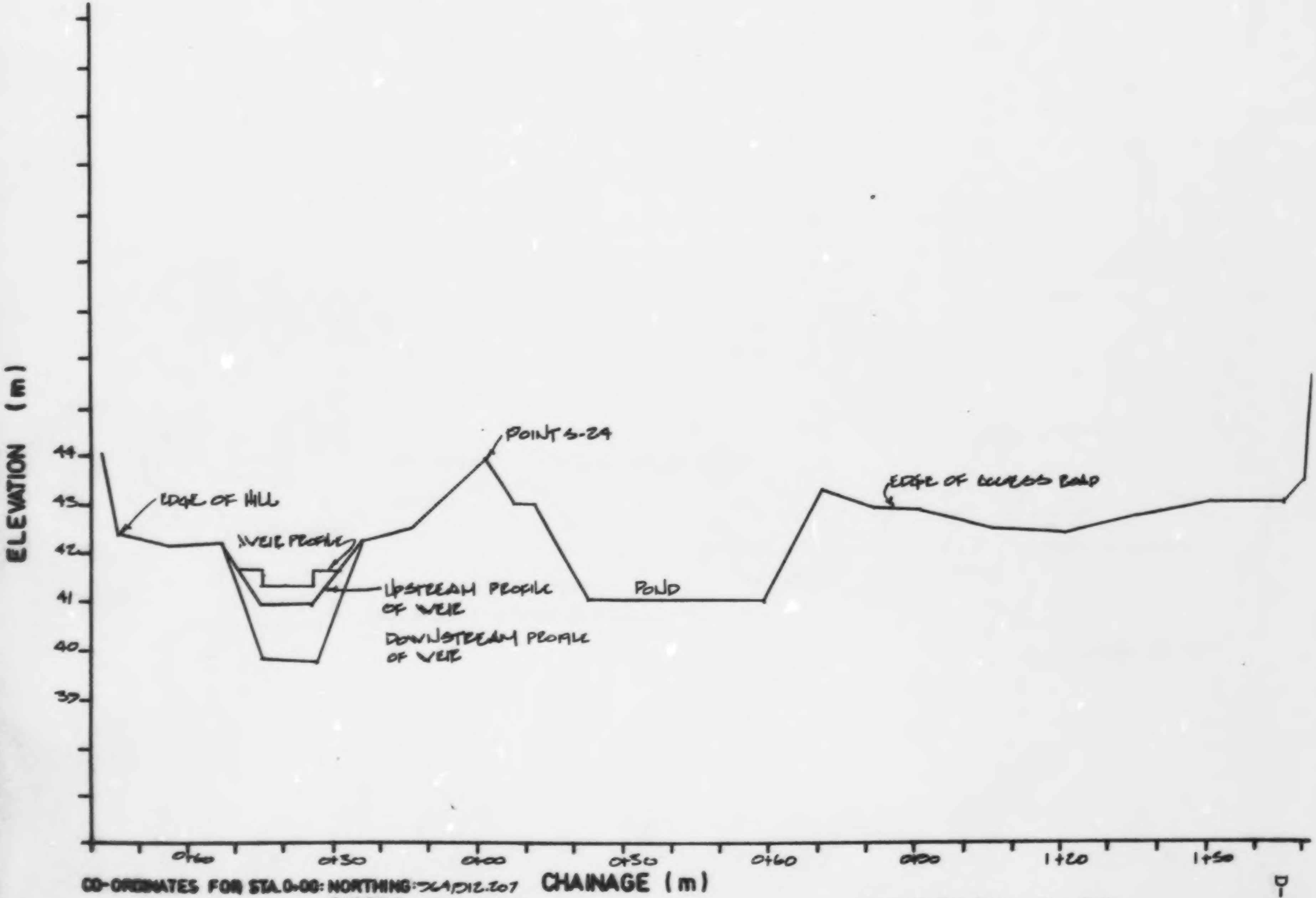
SECTION S-21



CO-ORDINATES FOR STA.0+00: NORTHING: 965,027.055
EASTING : 285,156.572

AZ = 162.4220

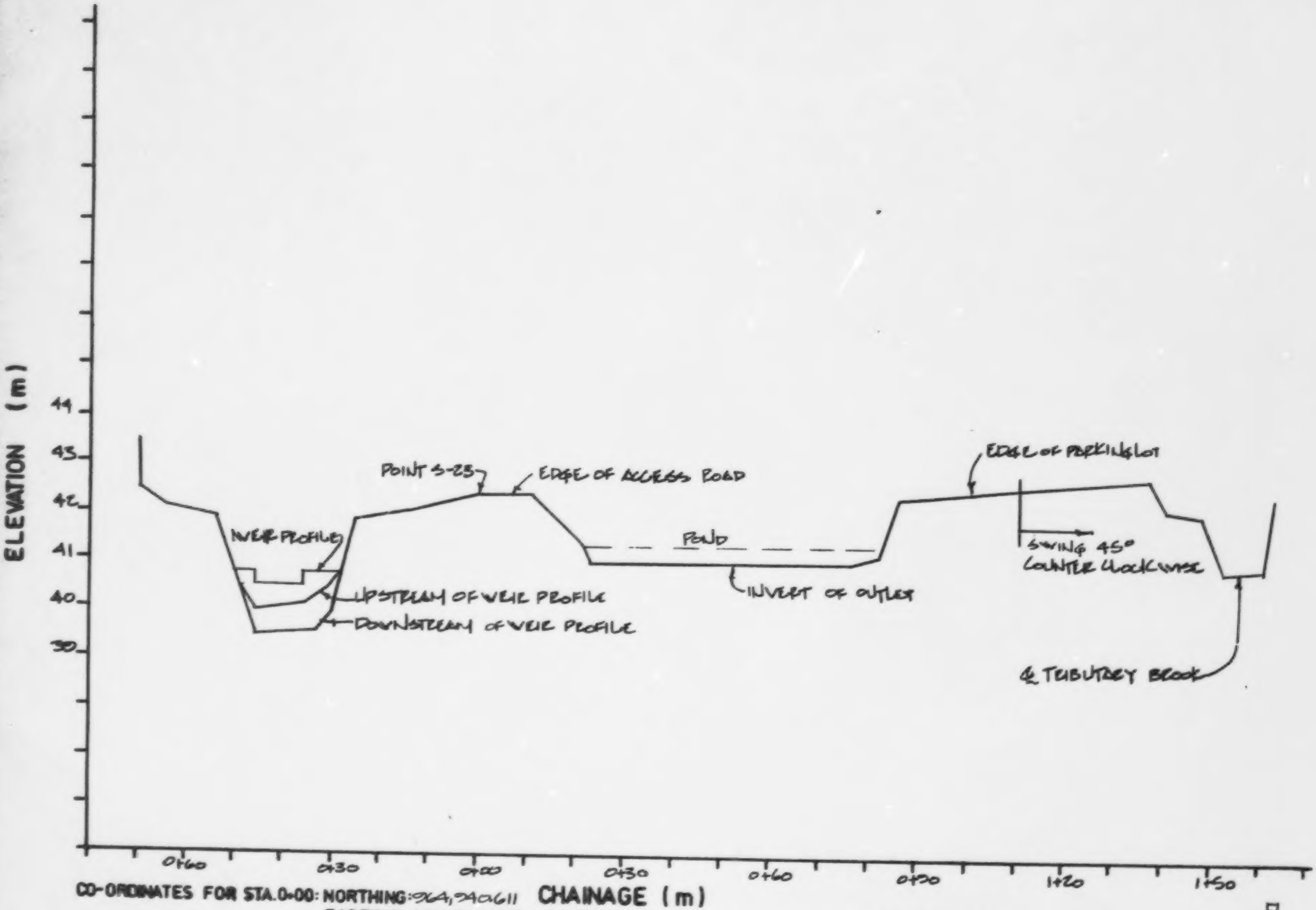
SECTION S-22



CO-ORDINATES FOR STA.0+00: NORTHING: 5641512.207
EASTING : 285446.924

AZ=251.306

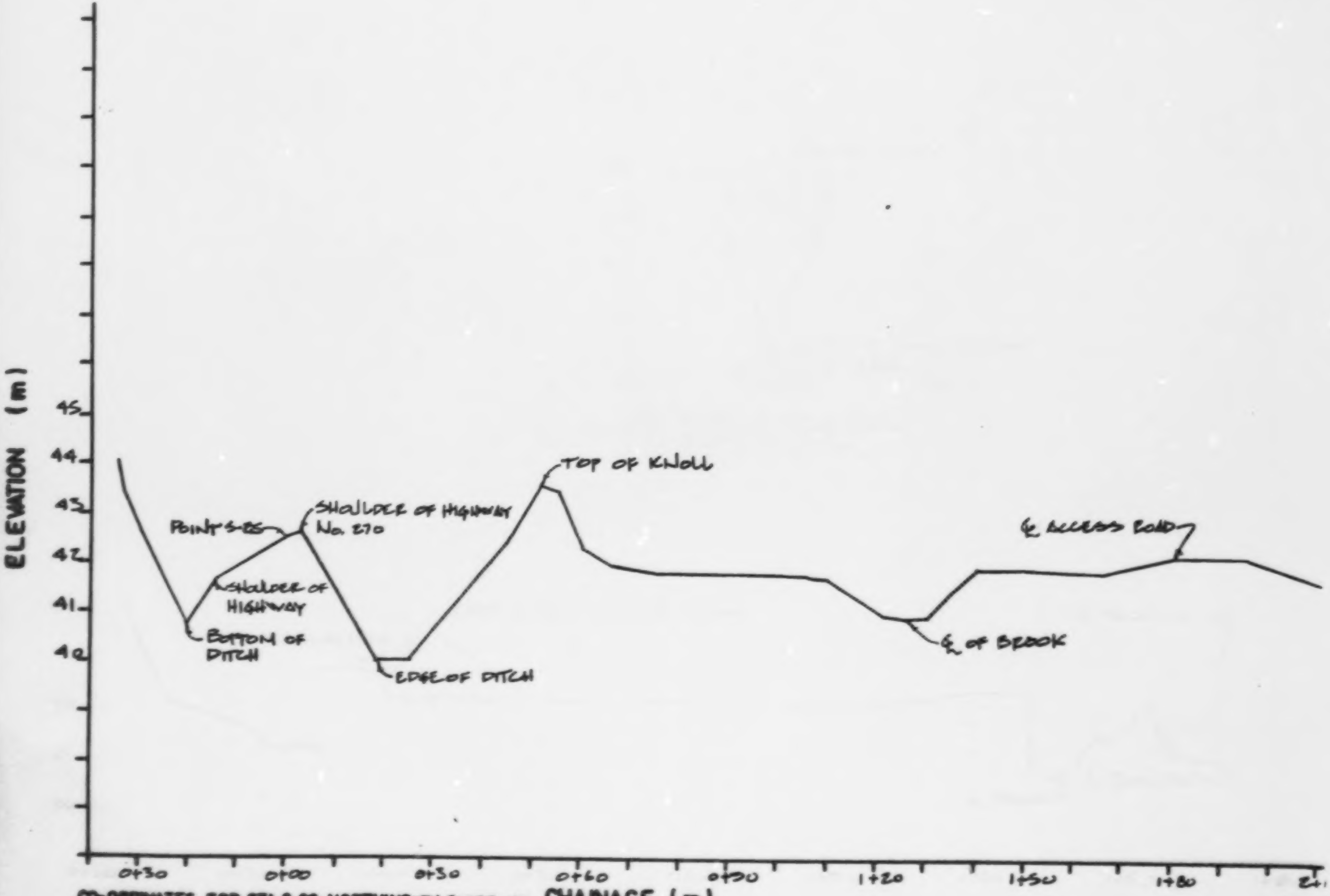
SECTION S-23



CO-ORDINATES FOR STA.0+00: NORTHING:964,940611
EASTING :285485.735

AZ = 251.806°

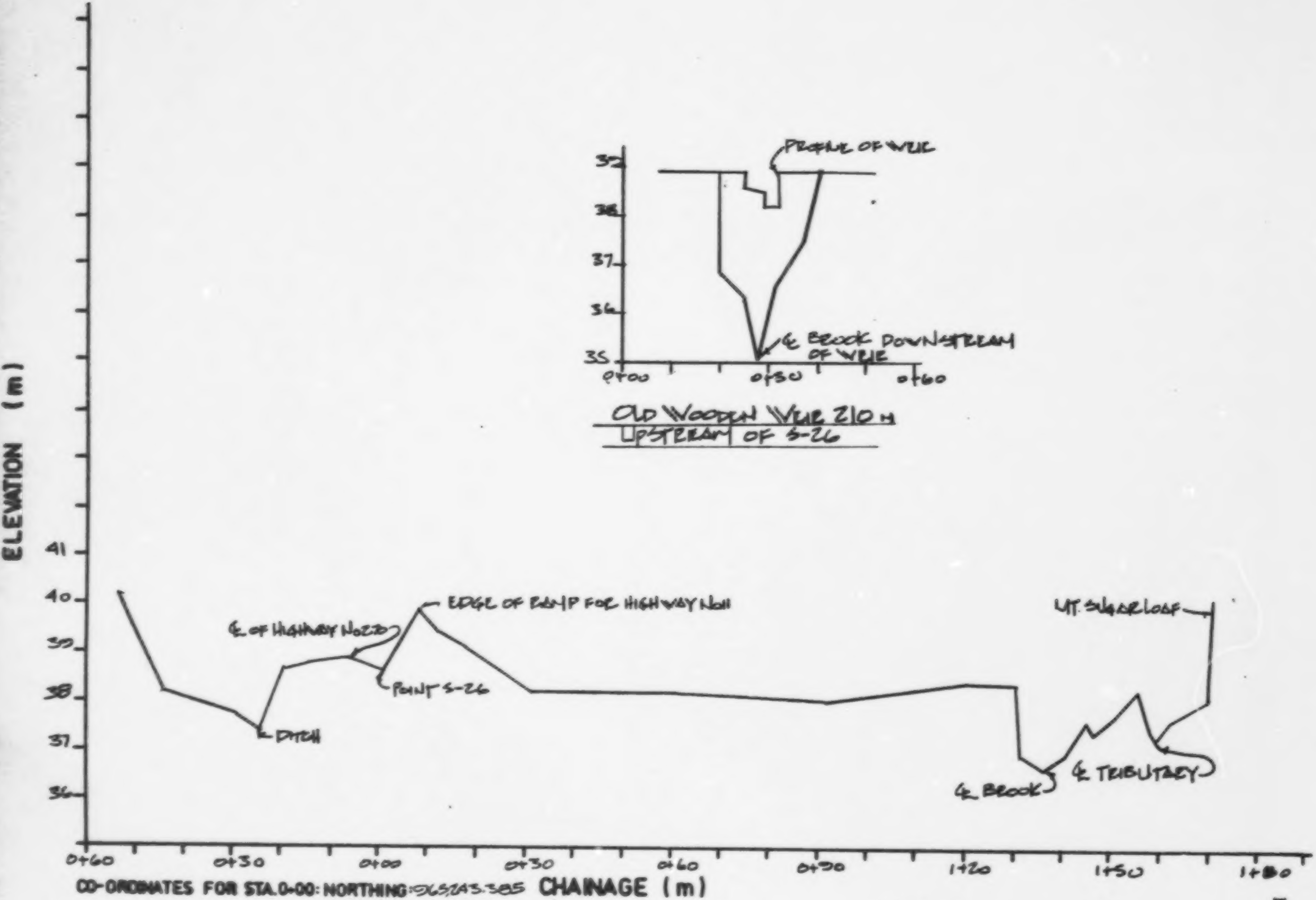
SECTION S-24



CO-ORDINATES FOR STA.0+00: NORTHING:965,078.143
EASTING :285,341.375

AZ=77.735° →

SECTION S-25

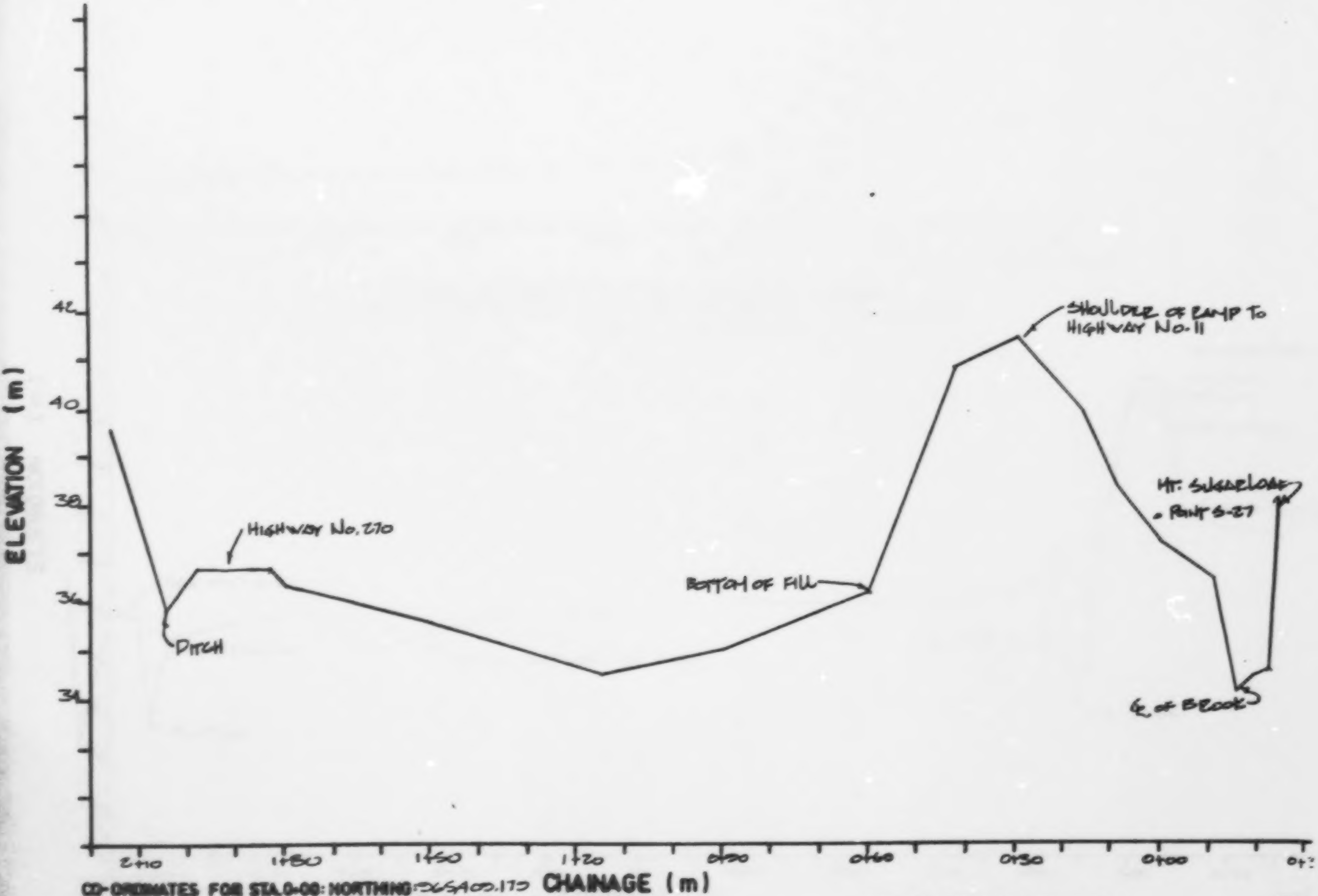


CO-ORDINATES FOR STA.0+00: NORTHING: 565,243.385
EASTING: 285,330.650

CHAINAGE (m)

AZ = 60.245°

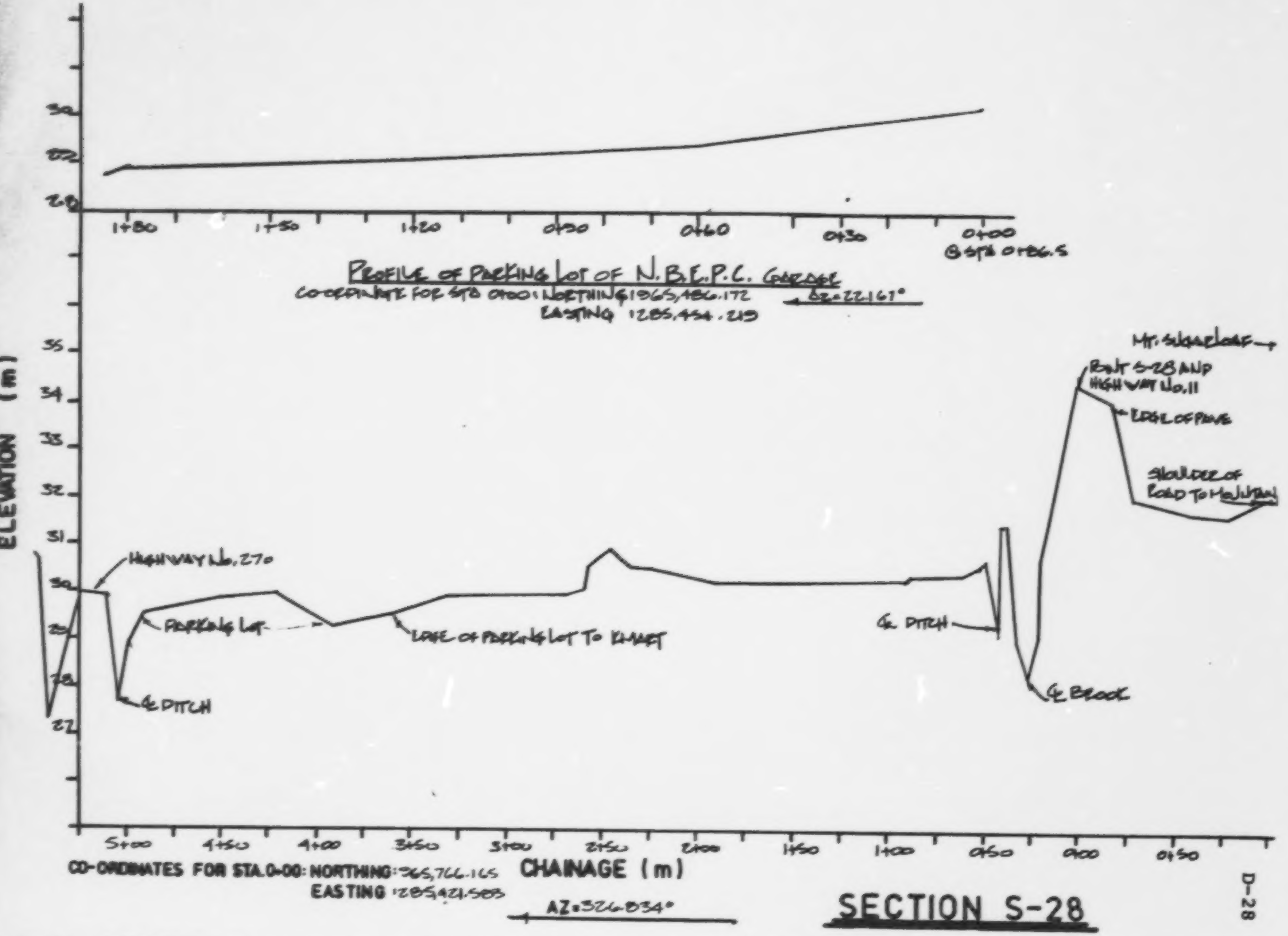
SECTION S-26



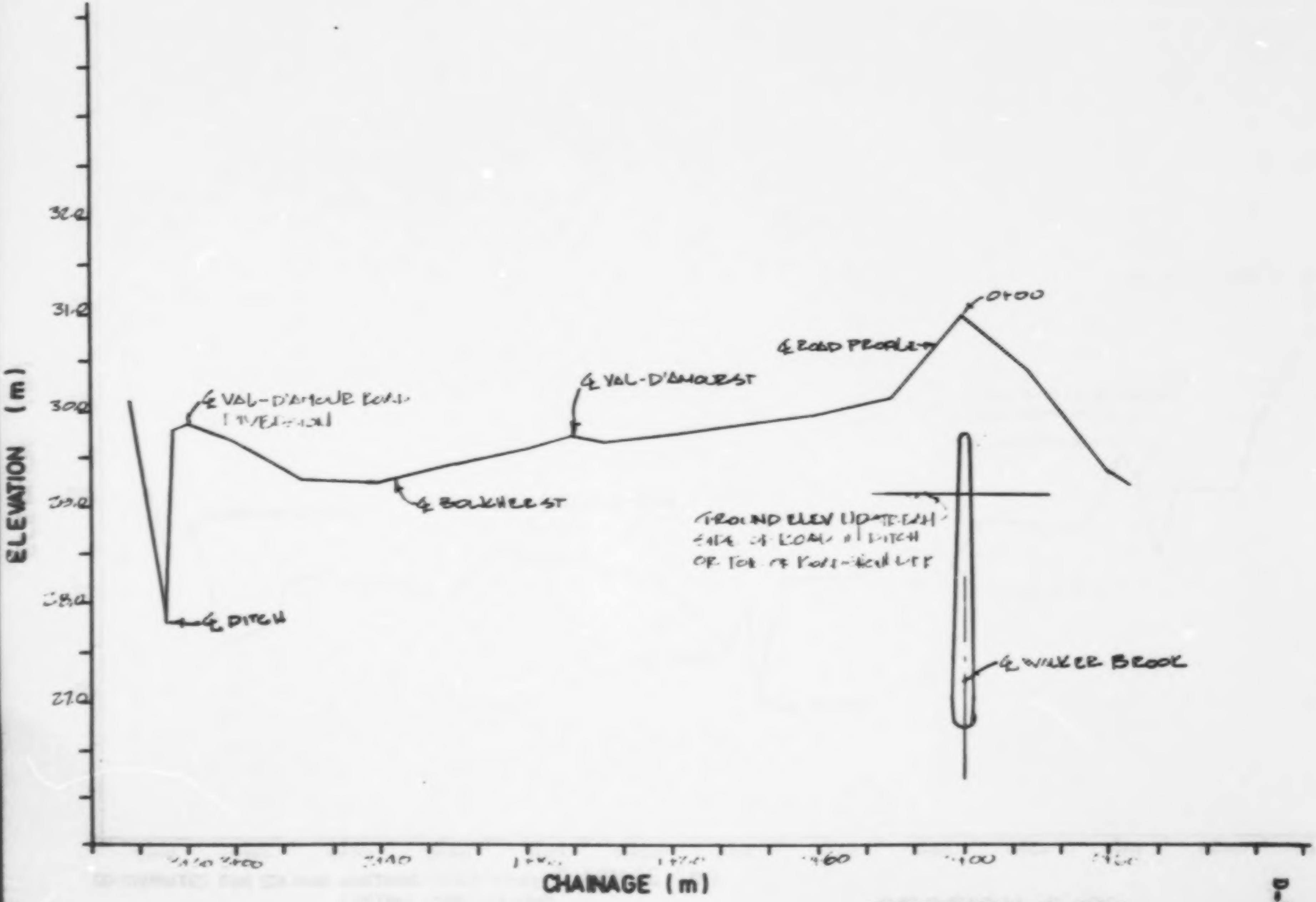
CO-ORDINATES FOR STA.0+00: NORTHING: 5654005.175
EASTING: 286398.55

AZ=56.204°

SECTION S-27

3.0
2.5
2.0
1+80
1+50
1+20
0+90
0+60
0+30
0+00
@ STA 0+86.5
PROFILE OF PARKING LOT OF N.B.E.P.C. GARAGE
CO-ORDINATE FOR STA 0+00: NORTHING 1965,486.172
EASTING 1285,454.215
AZ=22.161°
ELEVATION (m)
35
34
33
32
31
30
29
28
27
HIGHWAY No. 270
PARKING LOT
℄ DITCH
EDGE OF PARKING LOT TO K MART
℄ DITCH
℄ BROOK
PT. S-28 AND
HIGHWAY No. 11
EDGE OF PAVE
SHOULDER OF
ROAD TO MOUNTAIN
MT. SUGARLOAF →
5+00
4+50
4+00
3+50
3+00
2+50
2+00
1+50
1+00
0+50
0+00
0+50
CO-ORDINATES FOR STA. 0+00: NORTHING: 965,766.165
EASTING: 1285,421.583
CHAINAGE (m)
AZ=326.834°

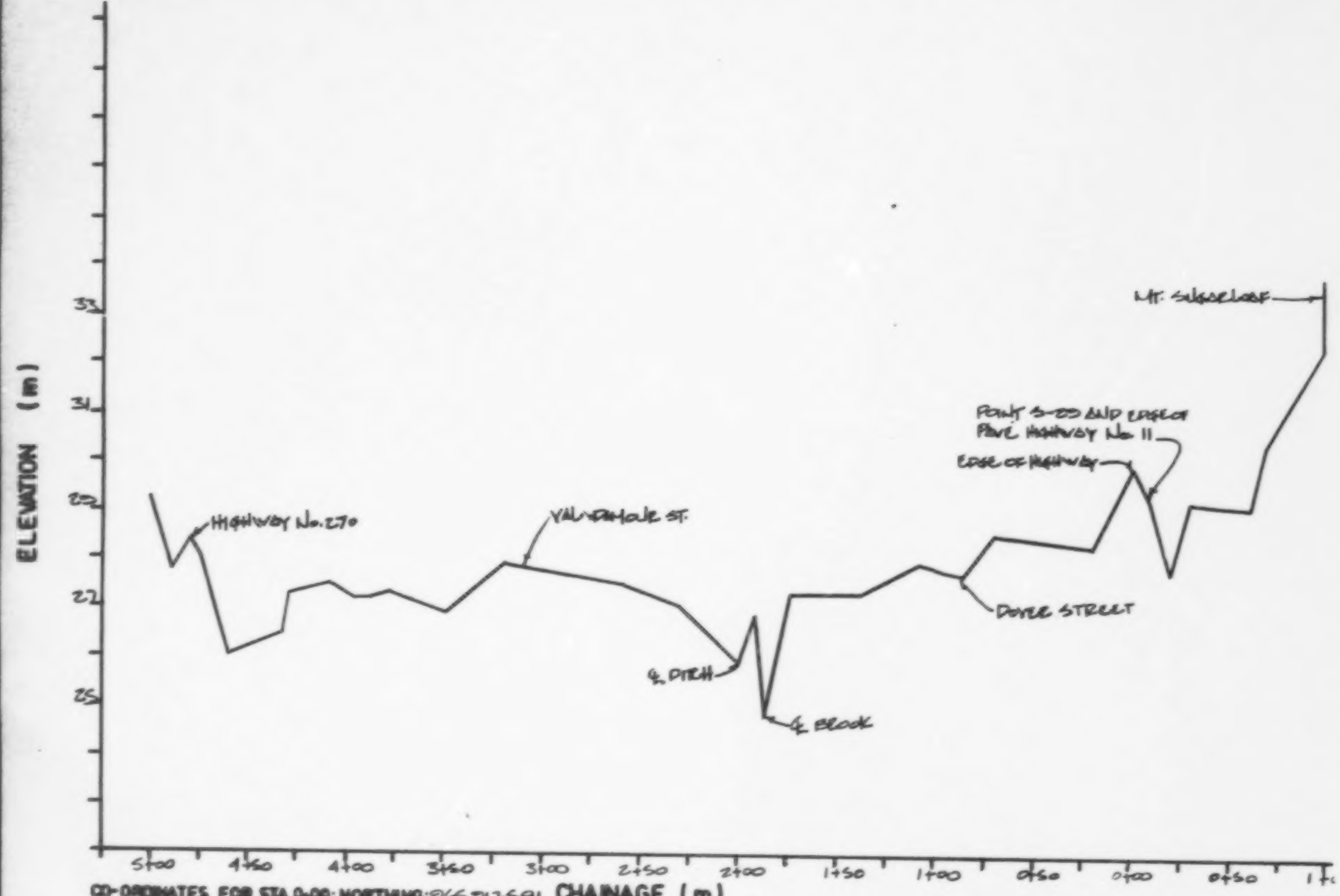
SECTION S-28



SUPPLEMENTARY SECTION [illegible]

SECTION S-28A

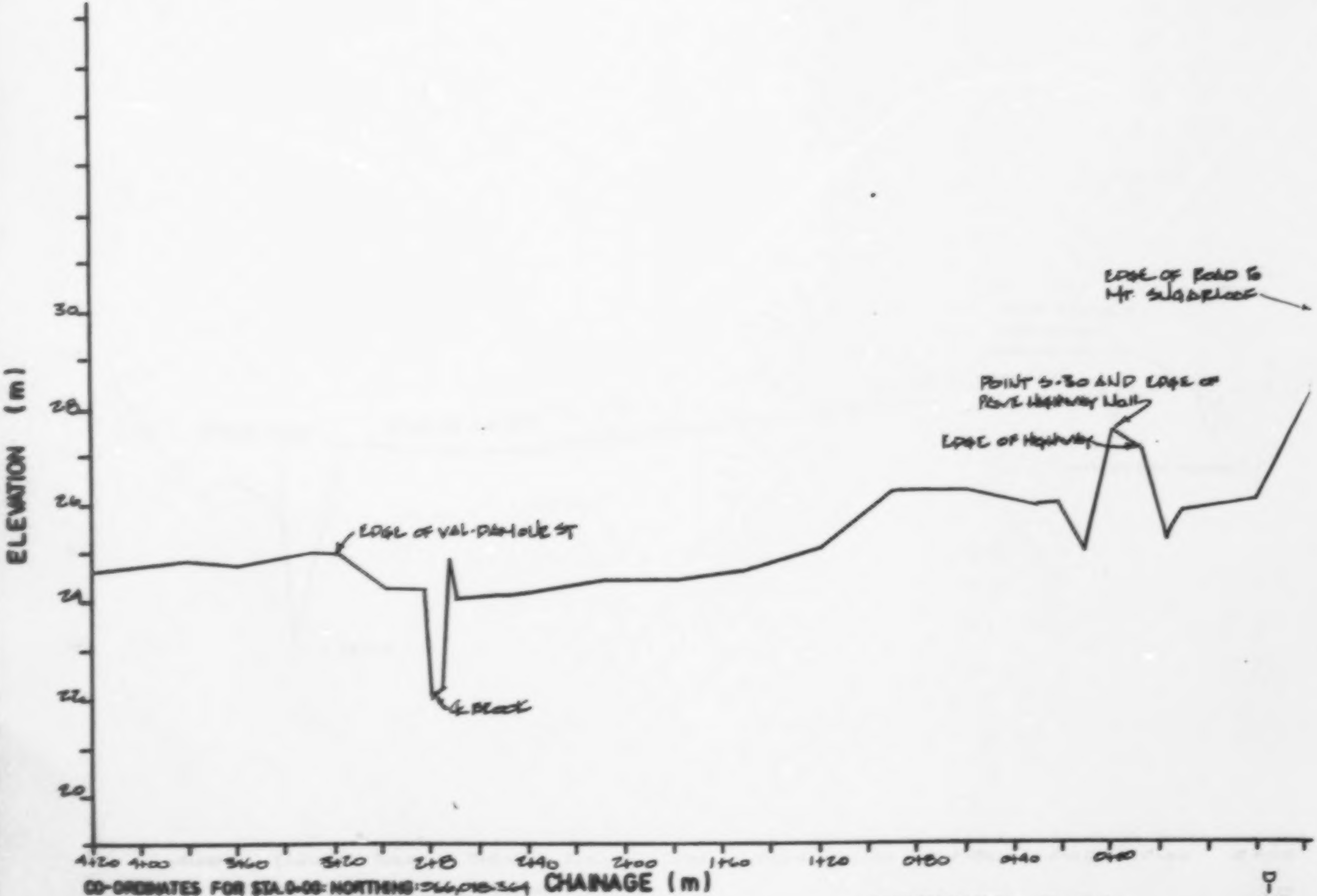
D-28A



CO-ORDINATES FOR STA.0+00: NORTHING:965,517.581
EASTING :285,645.888

AZ=327.407°

SECTION S-29

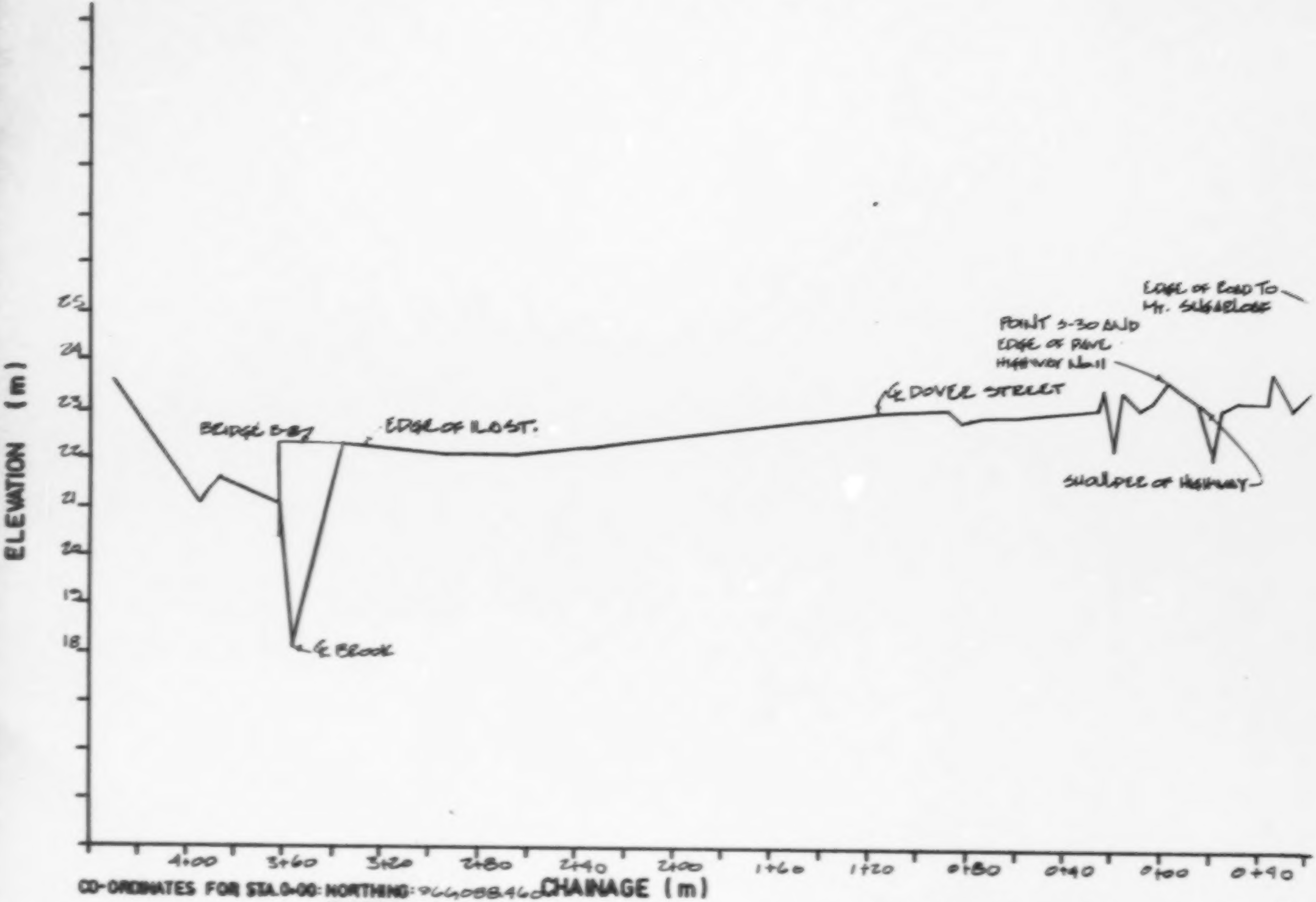


CO-ORDINATES FOR STA.0+00: NORTHING:566,018.364
EASTING :284,824.782

AZ=340 671

SECTION S-30

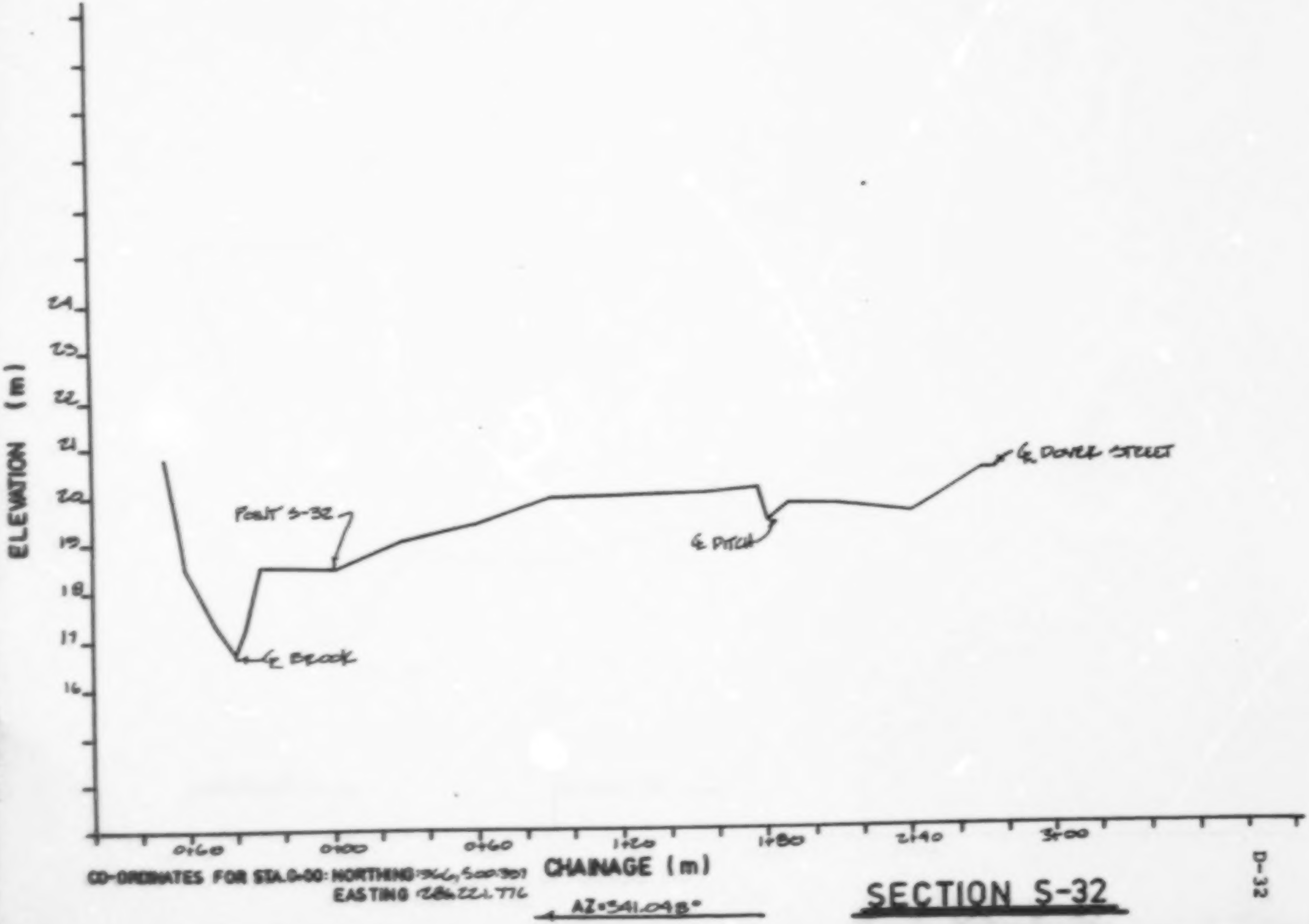
D-30



CO-ORDINATES FOR STA.0+00: NORTHING: 966,088.460
EASTING: 286,126.924

AZ=341.068°

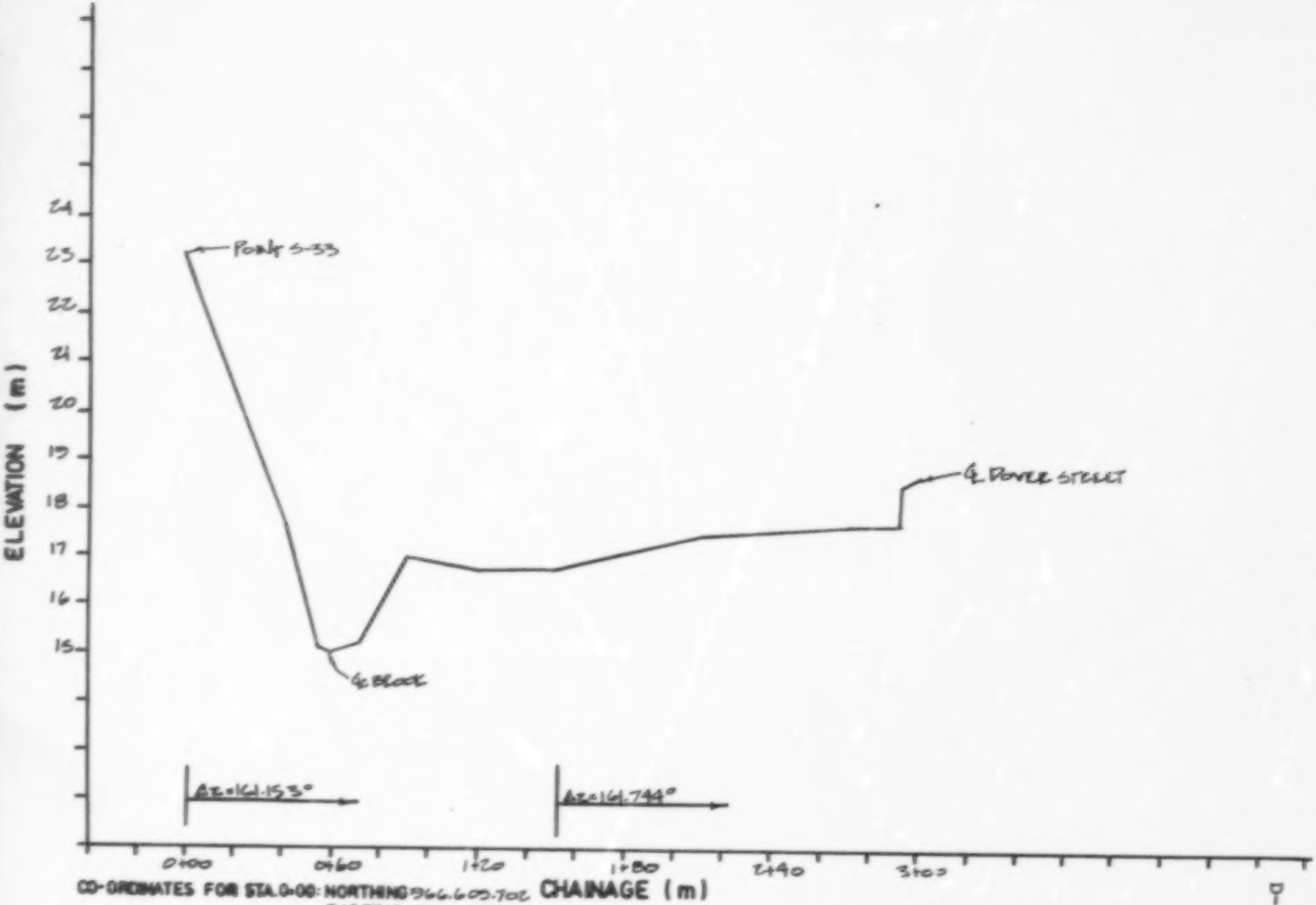
SECTION S-31



CO-ORDINATES FOR STA.0+00: NORTHING 966,500.301
EASTING 286221.776

AZ=341.048°

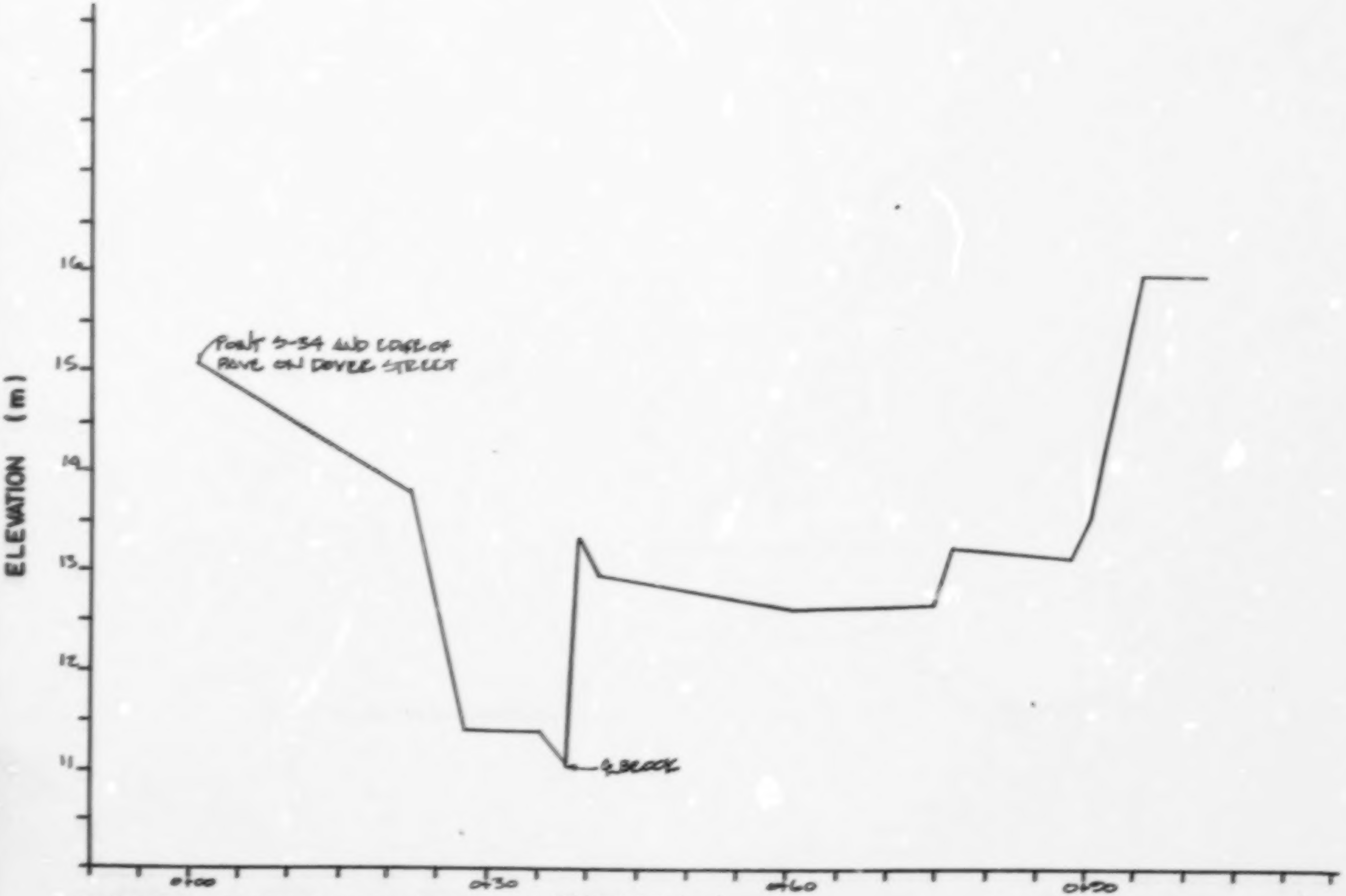
SECTION S-32



CO-ORDINATES FOR STA.0+00: NORTHING 966,605.702
EASTING 286,343.552

AZ=

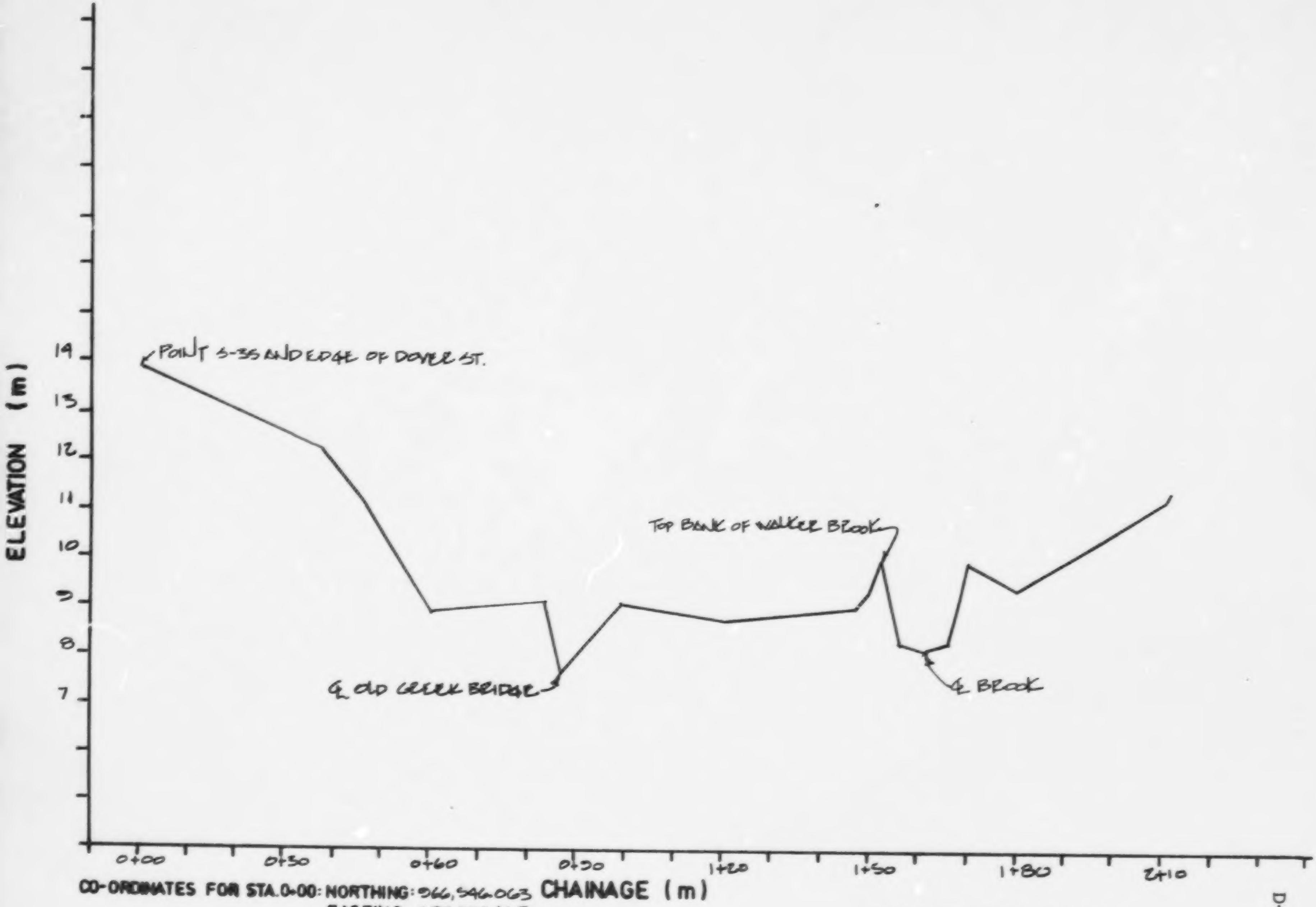
SECTION S-33



CO-ORDINATES FOR STA.0+00: NORTHING 5166,447.288
EASTING 286,472.041

AZ=156.375°

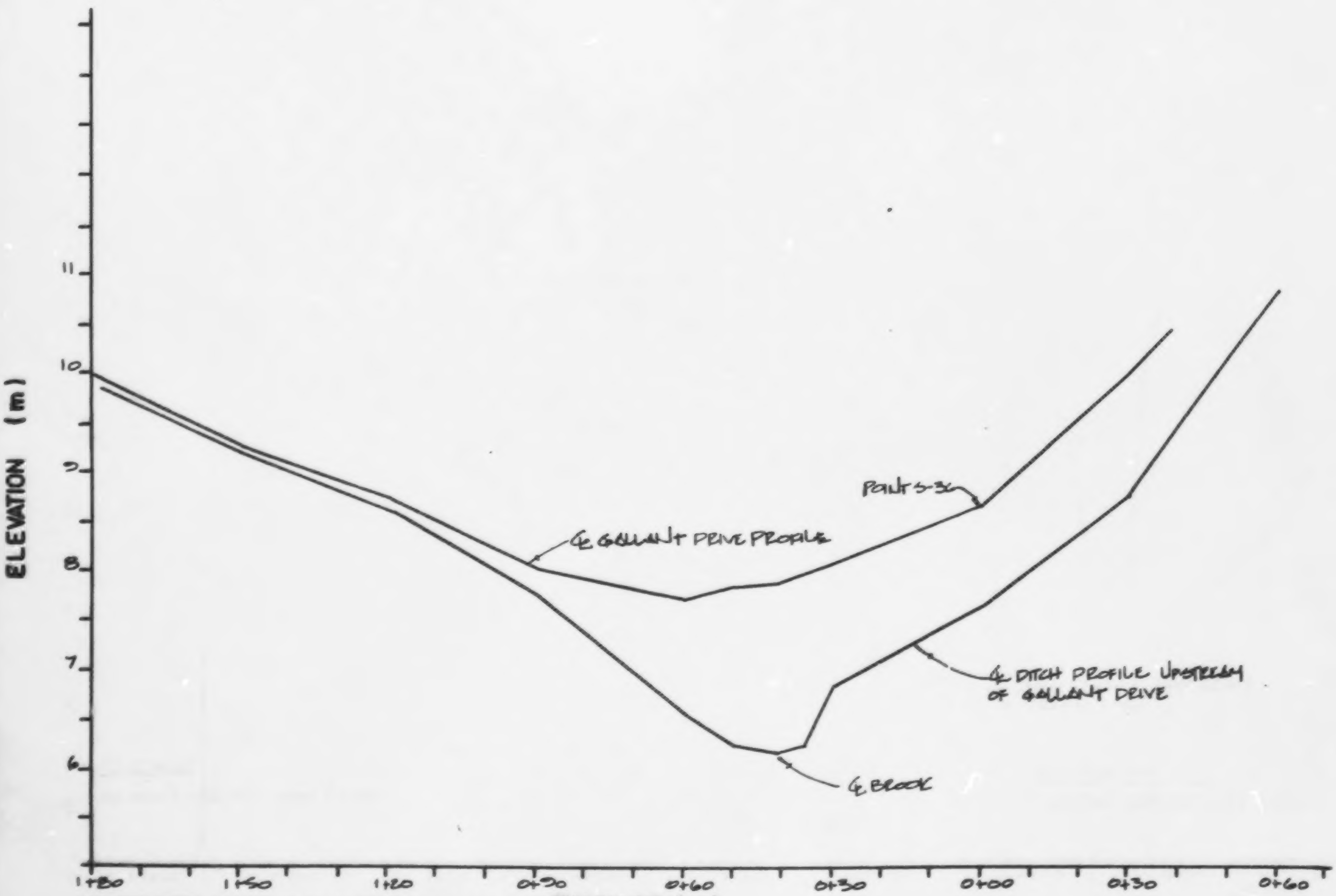
SECTION S-34



CO-ORDINATES FOR STA.0+00: NORTHING: 966,546.063
EASTING : 287,097.168

AZ = 157.586°

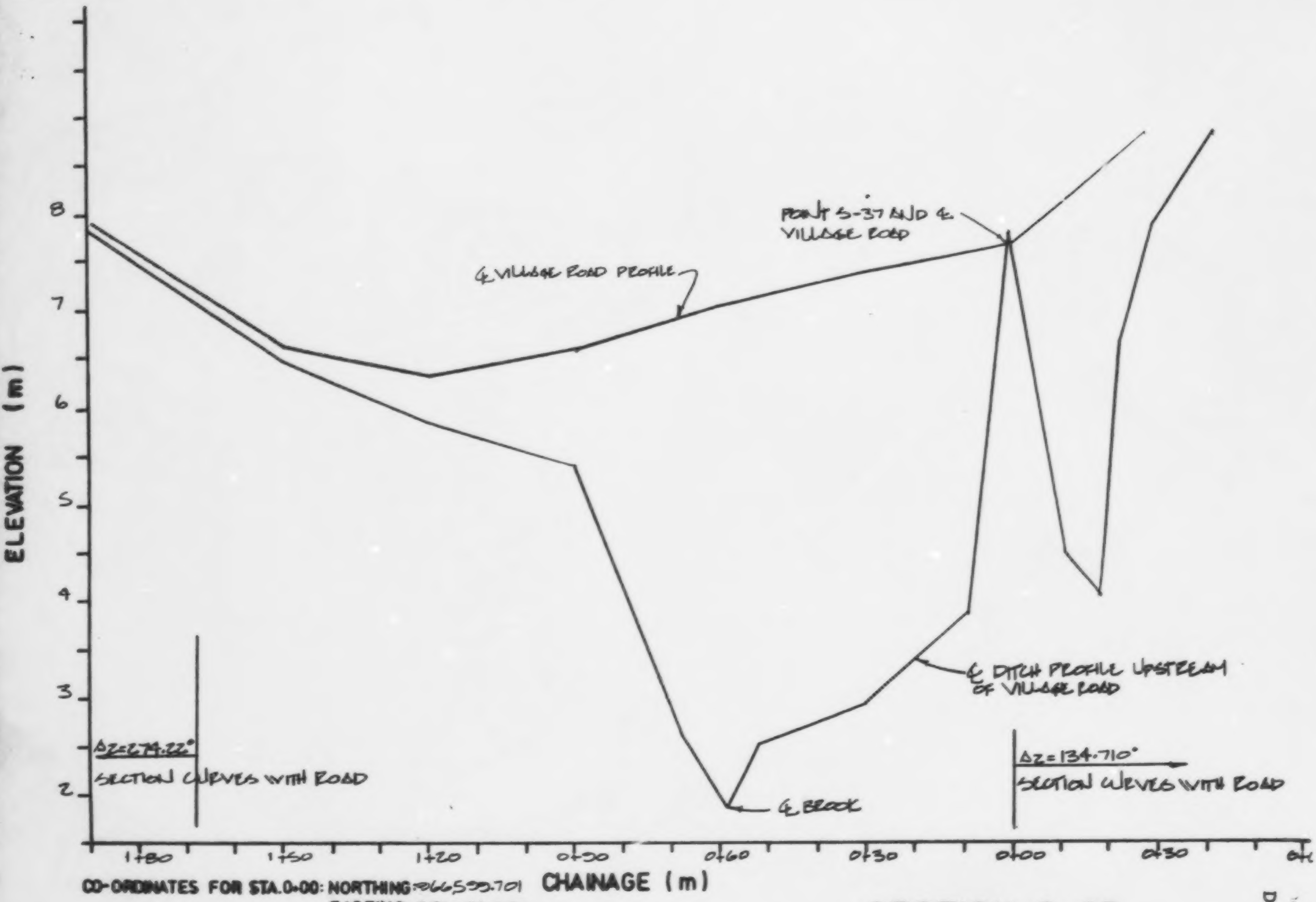
SECTION S-35



CO-ORDINATES FOR STA.0+00: NORTHING:366,320.515
EASTING :287,420.381

AZ=340.75°

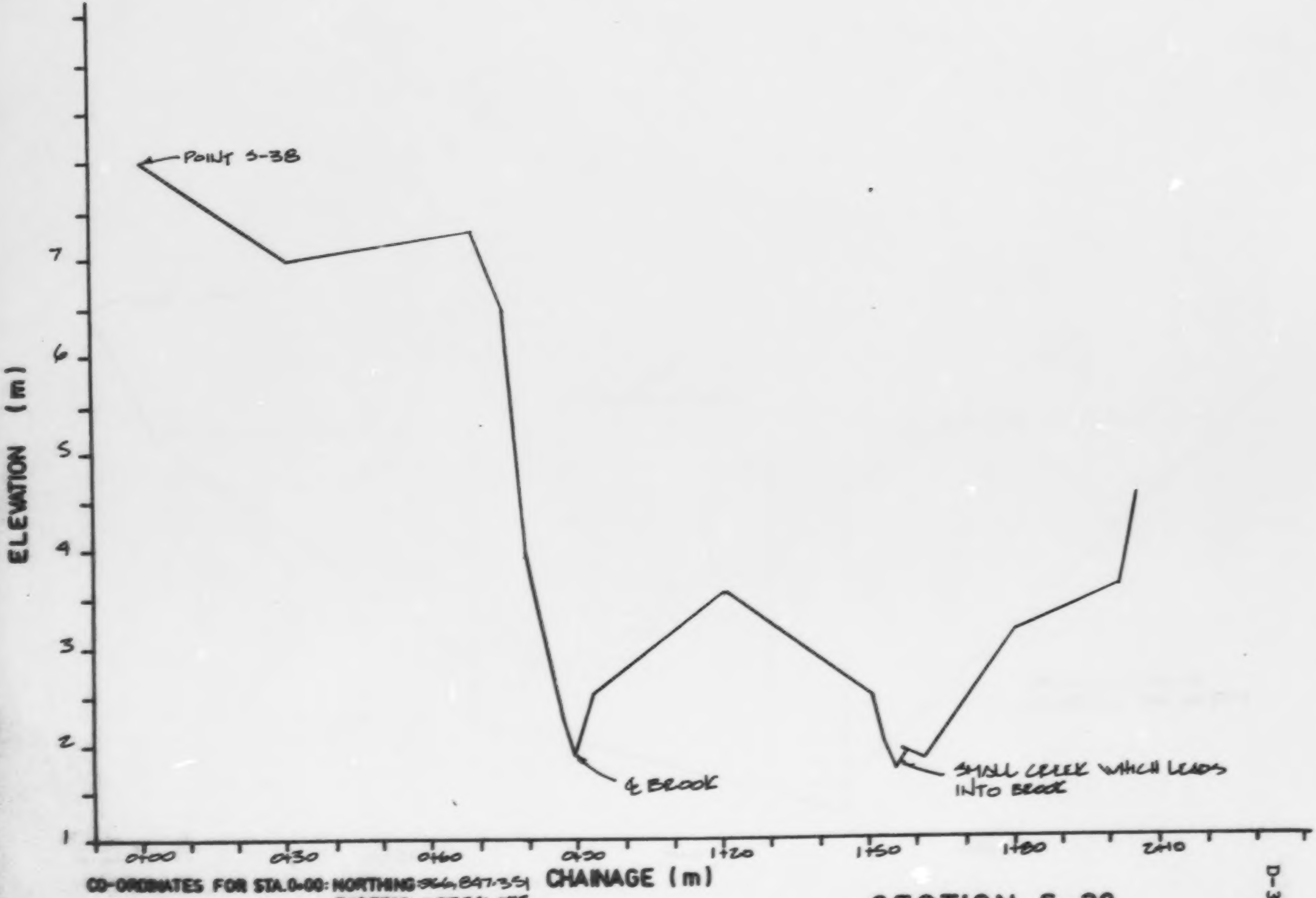
SECTION S-36



CO-ORDINATES FOR STA.0+00: NORTHING:866595.701
EASTING :287,681.380

AZ=

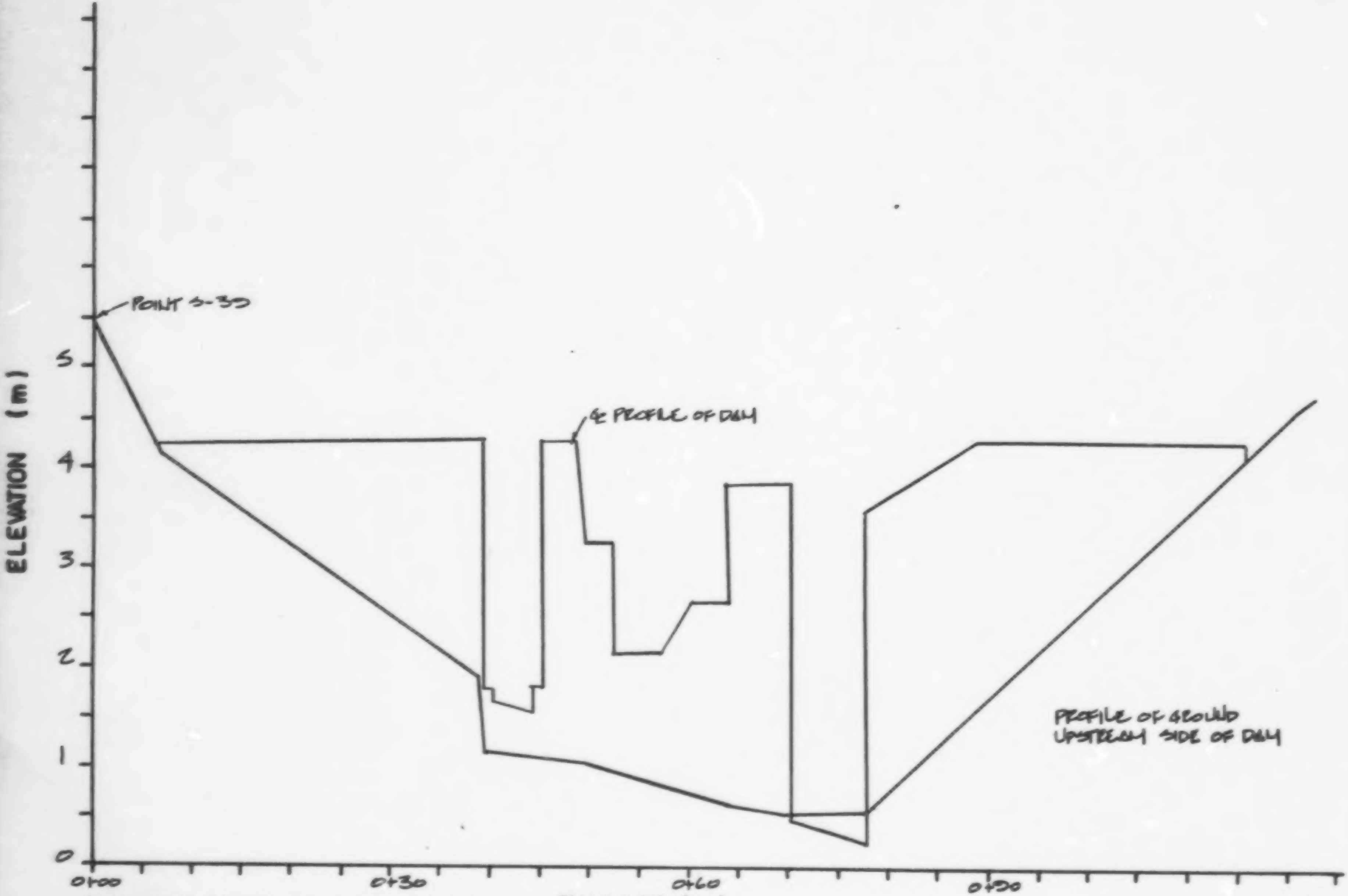
SECTION S-37



CO-ORDINATES FOR STA.0+00: NORTHING 966,847.351
EASTING 287,741.072

AZ = 166.664°

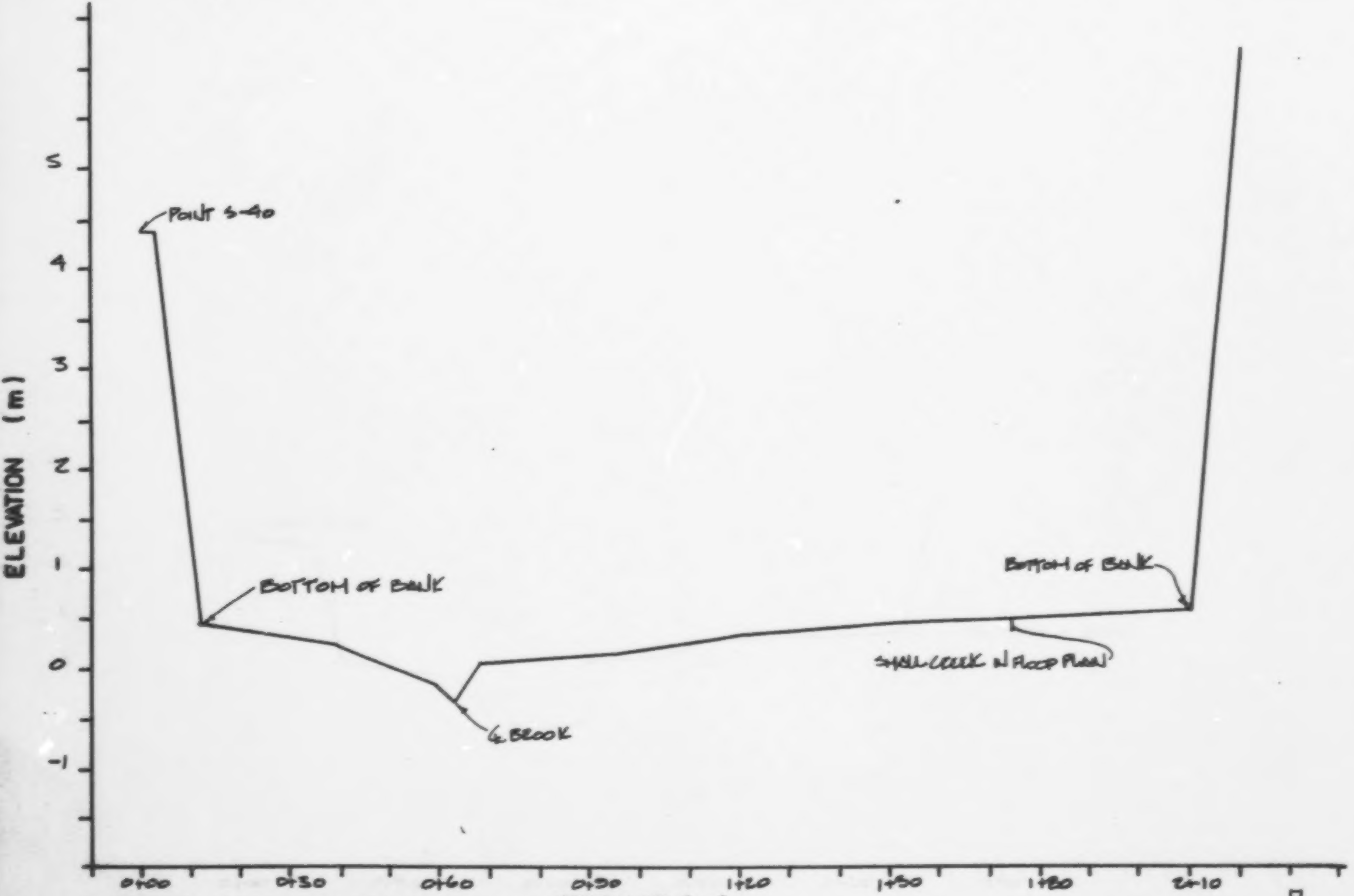
SECTION S-38



CO-ORDINATES FOR STA.0+00: NORTHING: 566,825.751
EASTING : 288,044.182

AZ=155.655° →

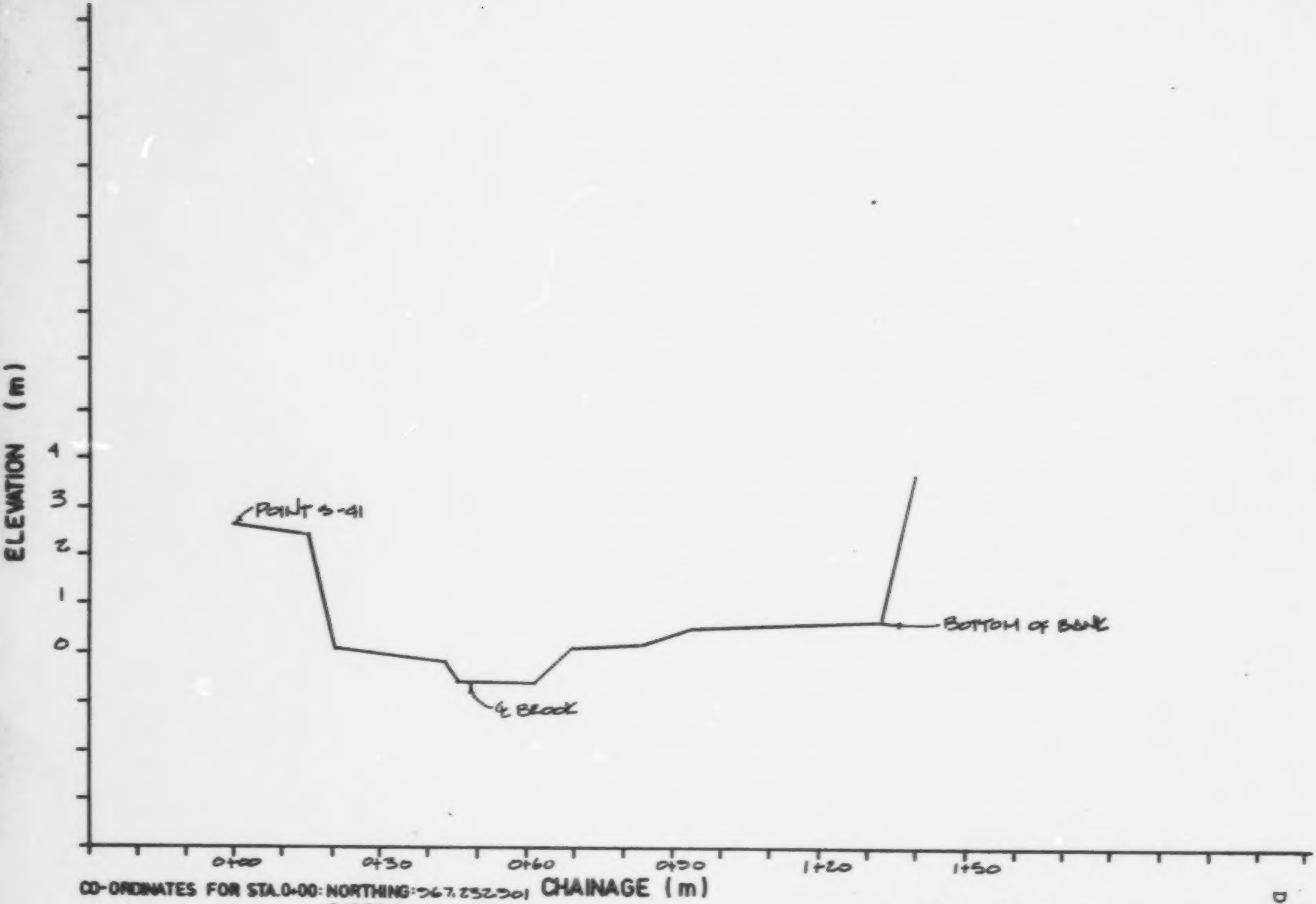
SECTION S-39



CO-ORDINATES FOR STA.0+00: NORTHING:567,057.120
EASTING :288,107.600

AZ=147.50°

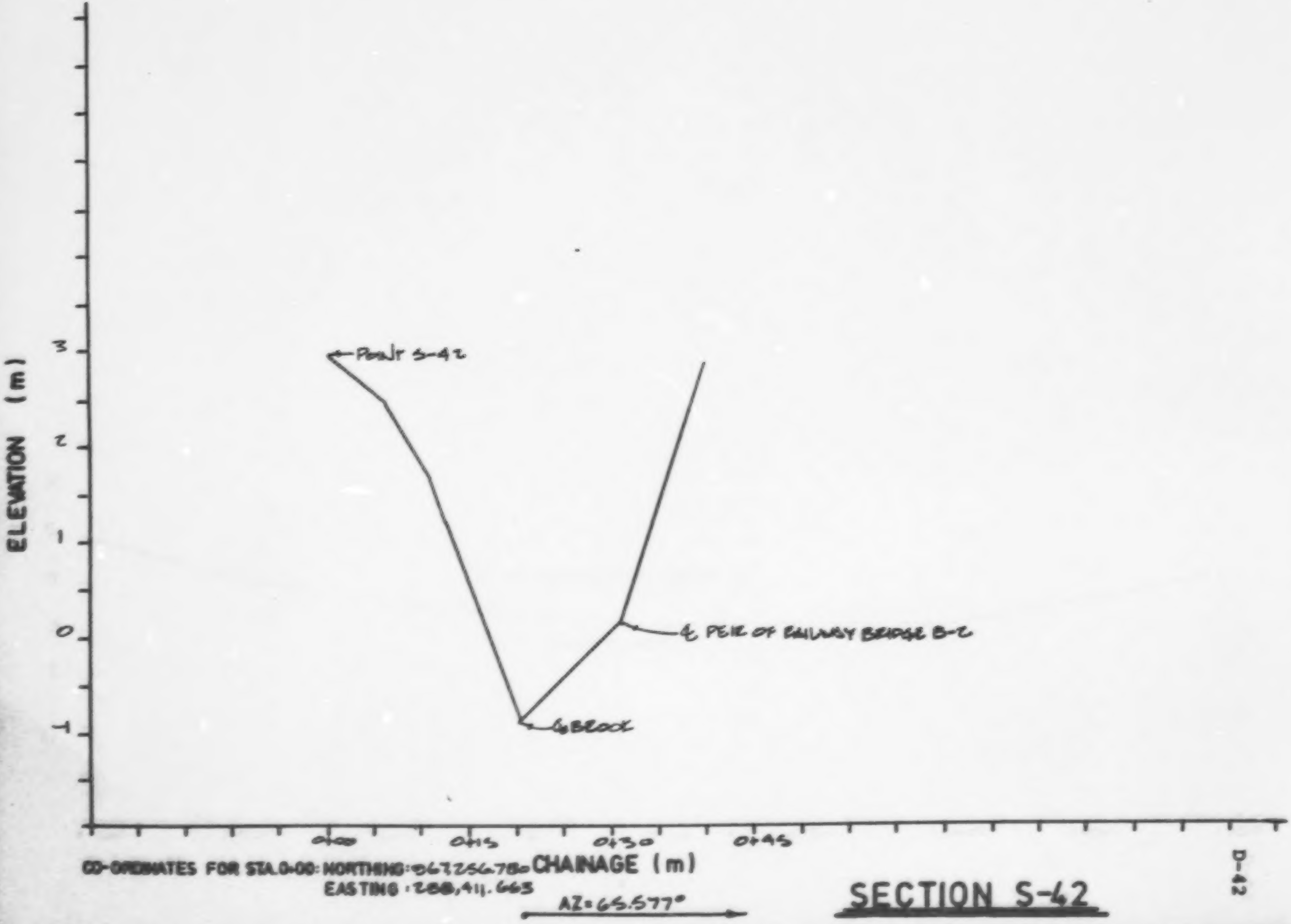
SECTION S-40



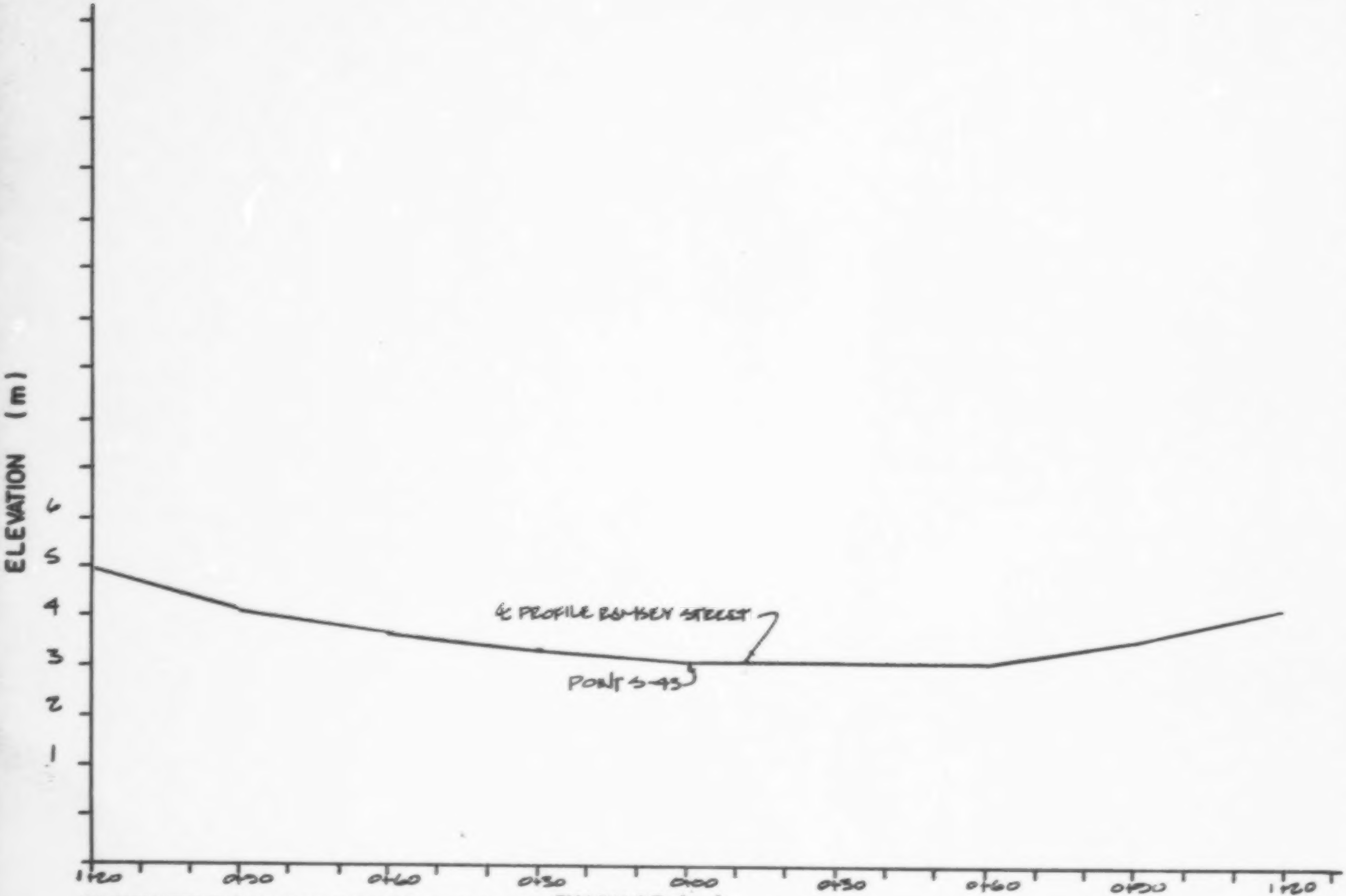
CO-ORDINATES FOR STA.0+00: NORTHING:567,252.501
EASTING :288,382.077

AZ=126.50°

SECTION S-41


ELEVATION (m)
3
2
1
0
-1
POINT S-42
℄ PEIR OF RAILWAY BRIDGE B-2
℄ BROOK
0+00
0+15
0+30
0+45
CHAINAGE (m)
CO-ORDINATES FOR STA.0+00: NORTHING:5673256.780
EASTING :288,411.663
AZ=65.577°

SECTION S-42



CO-ORDINATES FOR STA.0+00: NORTHING:967263.535
EASTING :288437.891

AZ=124.555°

SECTION S-43

SECTION E

WATER LEVEL MEASUREMENTS

WALKER BROOK FRESHET MONITORING PROGRAM

Cumming-Cockburn & Assoc.
Speer-MacDonald & Assoc.
for
ENVIRONMENT NEW BRUNSWICK

Gauge No. 1

Gauge Datum: 1.942 M

Measured by: MAY BERNIER

Type: STAFF GAUGE

Location: ON HYDRO POLE NEAR TRUSS BRIDGE FOR WATER LINE

i) Survey Data Table

Date	Time		Gauge Reading	Photograph Number		Ice Conditions		Ice Thickness (ft.)	Condition of Watercourse (Description)	Condition of Gauge		Condition of Culvert/Bridge	
	In	Out		Looking Upstream	Looking D/Stream	Yes	No			Operational	Non-Operational	Plugged	Open Flow
27-04		2:00	—.				✓		low.				✓

ii) General Comments on Condition of Walker Brook

Date: 27-04-82

Comments: Rainy day

WALKER BROOK FRESHET MONITORING PROGRAM

Cumming-Cockburn & Assoc.
Spear-MacDonald & Assoc.
for
ENVIRONMENT NEW BRUNSWICK

Gauge No. 2 Gauge Datum: 2.758 Measured by: MAY BERNICE

Type: CREST GAUGE

Location: UPSTREAM SIDE OF VILLAGE ROAD CROSSING ON WINGWALL

i) Survey Data Table

Date	Time		Gauge Reading	Photograph Number		Ice Conditions		Ice Thickness (ft.)	Condition of Watercourse (Description)	Condition of Gauge		Condition of Culvert/Bridge	
	In	Out		Looking Upstream	Looking D/Stream	Yes	No			Operational	Non-Operational	Plugged	Open Flow
25-04		✓	Gauge Down										
27-04		2:08	Visual				✓		RAPID, HIGH				OPEN

ii) General Comments on Condition of Walker Brook

Date: 27-04-82

Comments: LIGHT RAIN

WALKER BROOK FRESHET MONITORING PROGRAM

Cumming-Cockburn & Assoc.
Spear-MacDonald & Assoc.
for
ENVIRONMENT NEW BRUNSWICK

Gauge No. 3

Gauge Datum: 4.118

Measured by: Mev [illegible]

Type: STEEL GAUGE

Location: UPSTREAM SIDE OF VILLAGE ROAD ON WINGWALL

i) Survey Data Table

Date	Time		Gauge Reading	Photograph Number		Ice Conditions		Ice Thickness (ft.)	Condition of Watercourse (Description)	Condition of Gauge		Condition of Culvert/Bridge	
	In	Out		Looking Upstream	Looking D/Stream	Yes	No			Operational	Non-Operational	Plugged	Open Flow
25-04			Gauge Down										
27-04		7:10	Visual				✓		rapid (High)				✓

ii) General Comments on Condition of Walker Brook

Date:	Comments:
27-04-87	Light Rain

WALKER BROOK FRESHET MONITORING PROGRAM

Cumming-Cockburn & Assoc.
Spear-MacDonald & Assoc.
for
ENVIRONMENT NEW BRUNSWICK

Gauge No. 4
Gauge Datum: 6.208
Measured by: MAX PERAUSE

Type: CREST GAUGE

Location: UPSTREAM SIDE OF GALLANT DR. C/N: BRIDGE

i) Survey Data Table

Date	Time		Gauge Reading	Photograph Number		Ice Conditions		Ice Thickness (ft.)	Condition of Watercourse (Description)	Condition of Gauge		Condition of Culvert/Bridge	
	In	Out		Looking Upstream	Looking D/Stream	Yes	No			Operational	Non-Operational	Plugged	Open Flow
27-04 29-04		230	down- Visual	12	13		✓		rapid high				✓

ii) General Comments on Condition of Walker Brook

Date: 27-04-82

Comments: [illegible]

Upstream of Gallant Drive

Downstream of Gallant Drive

Pictures taken on April 27, 1982 by May Bernier to show water level at Gallant Drive after crest gauge was removed.

WALKER BROOK FRESHET MONITORING PROGRAM

Cumming-Cockburn & Assoc.
Spear-MacDonald & Assoc.
for
ENVIRONMENT NEW BRUNSWICK

Gauge No. 5
Gauge Datum: 7.646
Measured by: [illegible]

Type: STAFF GAUGE

Location: DOWNSTREAM OF GALLANT DR. ON POPLAR TREE 100FT FROM ROAD

i) Survey Data Table

Date	Time		Gauge Reading	Photograph Number		Ice Conditions		Ice Thickness (ft.)	Condition of Watercourse (Description)	Condition of Gauge		Condition of Culvert/Bridge	
	In	Out		Looking Upstream	Looking D/Stream	Yes	No			Operational	Non-Operational	Plugged	Open Flow
27.04		2:20	0	12	13		✓		rapid				✓

ii) General Comments on Condition of Walker Brook

Date:
27-04-87

Comments:

WALKER BROOK FRESHET MONITORING PROGRAM

Cumming-Cockburn & Assoc.
Spear-MacDonald & Assoc.
for
ENVIRONMENT NEW BRUNSWICK

Gauge No. 6

Gauge Datum: 7.056

Measured by: MAX Br[illegible]

Type: STAFF GAUGE

Location: DOWNSTREAM OF GALLANT DR.
ON HYDRO POLE

i) Survey Data Table

Date	Time		Gauge Reading	Photograph Number		Ice Conditions		Ice Thickness (ft.)	Condition of Watercourse (Description)	Condition of Gauge		Condition of Culvert/Bridge	
	In	Out		Looking Upstream	Looking D/Stream	Yes	No			Operational	Non-Operational	Plugged	Open Flow

ii) General Comments on Condition of Walker Brook

Date:

Comments:
NO READINGS TAKEN
GAUGE SET TO READ IN FLOOD CONDITIONS.

WALKER BROOK FRESHET MONITORING PROGRAM

Cumming-Cockburn & Assoc.
Spear-MacDonald & Assoc.
for
ENVIRONMENT NEW BRUNSWICK

Gauge No. 7

Gauge Datum: 10.586

Measured by: Max Bernier

Type: CREST GAUGE

Location: DOWNSTREAM SIDE OF GERRARD ST. BRIDGE ON CENTER SUPPORT

i) Survey Data Table

Date	Time		Gauge Reading	Photograph Number		Ice Conditions		Ice Thickness (ft.)	Condition of Watercourse (Description)	Condition of Gauge		Condition of Culvert/Bridge	
	In	Out		Looking Upstream	Looking D/Stream	Yes	No			Operational	Non-Operational	Plugged	Open Flow
27-04		2:25	0						raped (High)				✓

ii) General Comments on Condition of Walker Brook

Date: 27-04 82

Comments: WEATHER: LIGHT RAIN

WALKER BROOK FRESHET MONITORING PROGRAM

Cunning-Cockburn & Assoc.
Spear-MacDonald & Assoc.
for
ENVIRONMENT NEW BRUNSWICK

Gauge No. 8

Gauge Datum: 10.901

Measured by: MAY [illegible]

Type: STAFF GAUGE

Location: DOWNSTREAM SIDE OF GERRARD ST
[illegible] ON POPLAR TREE 100FT. DN.

i) Survey Data Table

Date	Time		Gauge Reading	Photograph Number		Ice Conditions		Ice Thickness (ft.)	Condition of Watercourse (Description)	Condition of Gauge		Condition of Culvert/Bridge	
	In	Out		Looking Upstream	Looking D/Stream	Yes	No			Operational	Non-Operational	Plugged	Open Flow

ii) General Comments on Condition of Walker Brook

Date:

Comments:

GAUGE SET TO BE READ
IN FLOOD CONDITIONS

WALKER BROOK FRESHET MONITORING PROGRAM

Cumming-Cockburn & Assoc.
Spear-MacDonald & Assoc.
for
ENVIRONMENT NEW BRUNSWICK

Gauge No. 9

Gauge Datum: 13.298

Measured by: Mike Brennan

Type: CREST GAUGE

Location: UPSTREAM SIDE OF DOVER ST. CULVERT
AT WINGWALL

i) Survey Data Table

Date	Time		Gauge Reading	Photograph Number		Ice Conditions		Ice Thickness (ft.)	Condition of Watercourse (Description)	Condition of Gauge		Condition of Culvert/Bridge	
	In	Out		Looking Upstream	Looking D/Stream	Yes	No			Operational	Non-Operational	Plugged	Open Flow
27-4-82		9:30	0036				✓		rapid				✓

ii) General Comments on Condition of Walker Brook

Date:
27-04-82

Comments:
WEATHER: LIGHT RAIN

WALKER BROOK FRESHET MONITORING PROGRAM

Cumming-Cockburn & Assoc.
Spear-MacDonald & Assoc.
for
ENVIRONMENT NEW BRUNSWICK

Gauge No. 10
Gauge Datum: 13.318
Measured by: MAY BERNIER

Type: STAFF GAUGE

Location: DOWNSTREAMSIDE OF DOVER ST. CROSSING ON OAK TREE 30METERS FROM ROAD

i) Survey Data Table

Date	Time		Gauge Reading	Photograph Number		Ice Conditions		Ice Thickness (ft.)	Condition of Watercourse (Description)	Condition of Gauge		Condition of Culvert/Bridge	
	In	Out		Looking Upstream	Looking D/Stream	Yes	No			Operational	Non-Operational	Plugged	Open Flow

ii) General Comments on Condition of Walker Brook

Date:

Comments:
GAUGE SET TO READ
IN FLOOD CONDITIONS

WALKER BROOK FRESHET MONITORING PROGRAM

Cumming-Cockburn & Assoc.
Spear-MacDonald & Assoc.
for
ENVIRONMENT NEW BRUNSWICK

Gauge No. 11
Gauge Datum: 19.340
Measured by: MAY BERNIER

Type: CREST GAUGE

Location: DOWNSTREAM OF PINE; ILA STREET ON WINGWALL OF SEWER OUTFALL

i) Survey Data Table

Date	Time		Gauge Reading	Photograph Number		Ice Conditions		Ice Thickness (ft.)	Condition of Watercourse (Description)	Condition of Gauge		Condition of Culvert/Bridge	
	In	Out		Looking Upstream	Looking D/Stream	Yes	No			Operational	Non-Operational	Plugged	Open Flow
27-04		9:40	0				✓		[illegible]				✓

ii) General Comments on Condition of Walker Brook

Date:
27-04-82

Comments:
WEATHER: LIGHT RAIN

WALKER BROOK FRESHET MONITORING PROGRAM

Cumming-Cockburn & Assoc.
Spear-MacDonald & Assoc.
for
ENVIRONMENT NEW BRUNSWICK

Gauge No. 12

Gauge Datum: 23.398

Measured by: MAY BERNIER

Type: CREST GAUGE

Location: UPSTREAM SIDE OF WALKING BRIDGE ON ABUTMENT OF ALEXANDER STREET

i) Survey Data Table

Date	Time		Gauge Reading	Photograph Number		Ice Conditions		Ice Thickness (ft.)	Condition of Watercourse (Description)	Condition of Gauge		Condition of Culvert/Bridge	
	In	Out		Looking Upstream	Looking D/Stream	Yes	No			Operational	Non-Operational	Plugged	Open Flow
2704		2:45	0				✓		rapid				✓

ii) General Comments on Condition of Walker Brook

Date:
27-04-82

Comments:
WEATHER: LIGHT RAIN

WALKER BROOK FRESHET MONITORING PROGRAM

Cumming-Cockburn & Assoc.
Spear-MacDonald & Assoc.
for
ENVIRONMENT NEW BRUNSWICK

Gauge No. 13
Gauge Datum: 23.123
Measured by: MAX BERNIER
Type: STAFF GAUGE
Location: UPSTREAM OF WALKING BRIDGE ON ALEXANDER STREET ON RETAINING WALL

1) Survey Data Table

Date	Time		Gauge Reading	Photograph Number		Ice Conditions		Ice Thickness (ft.)	Condition of Watercourse (Description)	Condition of Gauge		Condition of Culvert/Bridge	
	In	Out		Looking Upstream	Looking D/Stream	Yes	No			Operational	Non-Operational	Plugged	Open Flow

11) General Comments on Condition of Walker Brook

Date:

Comments:
GAUGE SET TO READ IN
EXTREME FLOOD CONDITIONS.

WALKER BROOK FRESHET MONITORING PROGRAM

Cumming-Cockburn & Assoc.
Spear-MacDonald & Assoc.
for
ENVIRONMENT NEW BRUNSWICK

Gauge No. 14

Gauge Datum: 28.976

Measured by: [illegible]

Type: STAFF GAUGE

Location: UPSTREAM OF POWER ROAD CROSSING ON N.B.E.P.C. FENCE

i) Survey Data Table

Date	Time		Gauge Reading	Photograph Number		Ice Conditions		Ice Thickness (ft.)	Condition of Watercourse (Description)	Condition of Gauge		Condition of Culvert/Bridge	
	In	Out		Looking Upstream	Looking D/Stream	Yes	No			Operational	Non-Operational	Plugged	Open Flow
7-04		3:00	—						rapid				

ii) General Comments on Condition of Walker Brook

Date:

Comments:

GAUGE SET TO READ IN FLOOD CONDITIONS.

WALKER BROOK FRESHET MONITORING PROGRAM

Cumming-Cockburn & Assoc.
Spear-MacDonald & Assoc.
for
ENVIRONMENT NEW BRUNSWICK

Gauge No. 15

Type: CREST GAUGE

Location: UPSTREAM SIDE OF T.C.H.
ON SLOPE ON CULVERT

Gauge Datum: TOP - 32.734 BOTTOM - 31.644 } 86" ROD ON SLOPE

Measured by: MAX BERNIER

i) Survey Data Table

Date	Time		Gauge Reading	Photograph Number		Ice Conditions		Ice Thickness (ft.)	Condition of Watercourse (Description)	Condition of Gauge		Condition of Culvert/Bridge	
	In	Out		Looking Upstream	Looking D/Stream	Yes	No			Operational	Non-Operational	Plugged	Open Flow
27-04		3;10	—				✓		rapid				✓

ii) General Comments on Condition of Walker Brook

Date:
27-04-82

Comments:
WEATHER - LIGHT RAIN
GAUGE SET TO READ IN FLOOD CONDITIONS.

WALKER BROOK FRESHET MONITORING PROGRAM

Cumming-Cockburn & Assoc.
Spear-MacDonald & Assoc.
for
ENVIRONMENT NEW BRUNSWICK

Gauge No. 16

Gauge Datum: 31.254

Measured by: MEW [illegible]

Type: STAFF GUAGE

Location: UPSTREAM OF HIGHWAY #11 30METERS EAST OF CULVERT ON POPLAR TREE

i) Survey Data Table

Date	Time		Gauge Reading	Photograph Number		Ice Conditions		Ice Thickness (ft.)	Condition of Watercourse (Description)	Condition of Gauge		Condition of Culvert/Bridge	
	In	Out		Looking Upstream	Looking D/Stream	Yes	No			Operational	Non-Operational	Plugged	Open Flow

ii) General Comments on Condition of Walker Brook

Date:

Comments:

SET TO READ IN FLOOD PLAIN AREA

WALKER BROOK FRESHET MONITORING PROGRAM

Cumming-Cockburn & Assoc.
Spear-MacDonald & Assoc.
for
ENVIRONMENT NEW BRUNSWICK

Gauge No. 17

Gauge Datum: 34.325

Measured by: MAY CERNIER

Type: STAFF GAUGE

Location: THIRD HYDRO POLE DOWNSTREAM OF WATER MONITOR

i) Survey Data Table

Date	Time		Gauge Reading	Photograph Number		Ice Conditions		Ice Thickness (ft.)	Condition of Watercourse (Description)	Condition of Gauge		Condition of Culvert/Bridge	
	In	Out		Looking Upstream	Looking D/Stream	Yes	No			Operational	Non-Operational	Plugged	Open Flow

ii) General Comments on Condition of Walker Brook

Date:

Comments:

SET TO READ IN FLOOD CONDITIONS.

WALKER BROOK FRESHET MONITORING PROGRAM

Cumming-Cockburn & Assoc.
Spear-MacDonald & Assoc.
for
ENVIRONMENT NEW BRUNSWICK

Gauge No. 18
Gauge Datum: 50.786
Measured by: MAY BERNIER
Type: STAFF GAUGE
Location: UPSTREAM OF SNOMOBILE TUNNEL 30 METERS FROM ROAD ON POPLAR TREE

i) Survey Data Table

Date	Time		Gauge Reading	Photograph Number		Ice Conditions		Ice Thickness (ft.)	Condition of Watercourse (Description)	Condition of Gauge		Condition of Culvert/Bridge	
	In	Out		Looking Upstream	Looking D/Stream	Yes	No			Operational	Non-Operational	Plugged	Open Flow
27-04		3:15					✓		rapide				✓

ii) General Comments on Condition of Walker Brook

Date:
27-04-82

Comments:
WEATHER: LIGHT RAIN.

WALKER BROOK FRESHET MONITORING PROGRAM

Cumming-Cockburn & Assoc.
Spear-MacDonald & Assoc.
for
ENVIRONMENT NEW BRUNSWICK

Gauge No. 19

Gauge Datum: 67.631

Type: CREST GAUGE

Measured by: MAY BERNIER

Location: UPSTREAM OF SECOUND BRIDGE UPSTREAM OF ENTRANCE TO SUGARLOAF PARK.

i) Survey Data Table

Date	Time		Gauge Reading	Photograph Number		Ice Conditions		Ice Thickness (ft.)	Condition of Watercourse (Description)	Condition of Gauge		Condition of Culvert/Bridge	
	In	Out		Looking Upstream	Looking D/Stream	Yes	No			Operational	Non-Operational	Plugged	Open Flow
07-04		3:20	0.330				✓		[illegible]	✓			✓

ii) General Comments on Condition of Walker Brook

Date:

Comments:

WALKER BROOK FRESHET MONITORING PROGRAM

Cumming-Cockburn & Assoc.
Spear-MacDonald & Assoc.
for
ENVIRONMENT NEW BRUNSWICK

Gauge No. 20

Gauge Datum: 91.336

Measured by: MAX KERNIEZ

Type: CREST GAUGE

Location: UPSTREAM OF BRANHAM GULCH ROAD ON BRIDGE ABUTMENT.

i) Survey Data Table ([illegible])

Date	Time		Gauge Reading	Photograph Number		Ice Conditions		Ice Thickness (ft.)	Condition of Watercourse (Description)	Condition of Gauge		Condition of Culvert/Bridge	
	In	Out		Looking Upstream	Looking D/Stream	Yes	No			Operational	Non-Operational	Plugged	Open Flow
27-04		3:25	0.030				✓		ruff -	✓			

ii) General Comments on Condition of Walker Brook

Date: 27-04

Comments: Light rain

WALKER BROOK FRESHET MONITORING PROGRAM

Cumming-Cockburn & Assoc.
Spear-MacDonald & Assoc.
for
ENVIRONMENT NEW BRUNSWICK

Gauge No. 21

Gauge Datum: 104.449

Measured by: MAY BERNIER.

Type: CREST GAUGE

Location: UPSTREAM OF ROAD TO MALAUZE
ON BRIDGE ABUTMENT

I) Survey Data Table

Date	Time		Gauge Reading	Photograph Number		Ice Conditions		Ice Thickness (ft.)	Condition of Watercourse (Description)	Condition of Gauge		Condition of Culvert/Bridge	
	In	Out		Looking Upstream	Looking D/Stream	Yes	No			Operational	Non-Operational	Plugged	Open Flow
[illegible]		8:30	—						[illegible]				✓

II) General Comments on Condition of Walker Brook

Date:

Comments:

WALKER BROOK FRESHET MONITORING PROGRAM

Cumming-Cockburn & Assoc.
Spear-MacDonald & Assoc.
for
ENVIRONMENT NEW BRUNSWICK

Gauge No. 22

Gauge Datum: 103.969

Measured by: MAY BERNIER

Type: STAFF GAUGE

Location: UPSTREAM OF ROAD TO VILLAGE [illegible] 15M. FROM ROAD

i) Survey Data Table

Date	Time		Gauge Reading	Photograph Number		Ice Conditions		Ice Thickness (ft.)	Condition of Watercourse (Description)	Condition of Gauge		Condition of Culvert/Bridge	
	In	Out		Looking Upstream	Looking D/Stream	Yes	No			Operational	Non-Operational	Plugged	Open Flow
27-4		3:30	0.050						ruff	✓			✓

ii) General Comments on Condition of Walker Brook

Date:	Comments:
27-04	light rain

WALKER BROOK FRESHET MONITORING PROGRAM

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for
ENVIRONMENT NEW BRUNSWICK

Gauge No. 23
Gauge Datum: 111.589
Measured by: MAY BERNIER
Type: [illegible] GAUGE
Location: UPSTREAM OF LILLY LAKE ROAD INTERSECTION ON RETAINING WALL

i) Survey Data Table

Date	Time		Gauge Reading	Photograph Number		Ice Conditions		Ice Thickness (ft.)	Condition of Watercourse (Description)	Condition of Gauge		Condition of Culvert/Bridge	
	In	Out		Looking Upstream	Looking D/Stream	Yes	No			Operational	Non-Operational	Plugged	Open Flow
27-04		3:40	0				✓						✓

ii) General Comments on Condition of Walker Brook

Date:	Comments:
27-04	Light rain

WALKER BROOK FRESHET MONITORING PROGRAM

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for
ENVIRONMENT NEW BRUNSWICK

Gauge No. 24 Gauge Datum: 113.854 Measured by: MAY BERNIKE

Type: CREST GAUGE

Location: UPSTREAM OF ROAD TO CEMETARY
ON BRIDGE ABUTMENT

i) Survey Data Table

Date	Time		Gauge Reading	Photograph Number		Ice Conditions		Ice Thickness (ft.)	Condition of Watercourse (Description)	Condition of Gauge		Condition of Culvert/Bridge	
	In	Out		Looking Upstream	Looking D/Stream	Yes	No			Operational	Non-Operational	Plugged	Open Flow

ii) General Comments on Condition of Walker Brook

Date: Comments:

WALKER BROOK FRESHET MONITORING PROGRAM

Cumming-Cockburn & Assoc.
Spear-MacDonald & Assoc.
for
ENVIRONMENT NEW BRUNSWICK

Gauge No. 25 Gauge Datum: 113.804 Measured by: MAX BERNITZ.

Type: STAFF GAUGE

Location: UPSTREAM OF ROAD TO CEMETARY ON BRIDGE ABUTMENT.

i) Survey Data Table

Date	Time		Gauge Reading	Photograph Number		Ice Conditions		Ice Thickness (ft.)	Condition of Watercourse (Description)	Condition of Gauge		Condition of Culvert/Bridge	
	In	Out		Looking Upstream	Looking D/Stream	Yes	No			Operational	Non-Operational	Plugged	Open Flow

ii) General Comments on Condition of Walker Brook

Date: Comments:

WALKER BROOK FRESHET MONITORING PROGRAM

Cumming-Cockburn & Assoc.
Spear-MacDonald & Assoc.
for
ENVIRONMENT NEW BRUNSWICK

Gauge No. 26

Gauge Datum: 131.561

Type: CREST GAUGE

Measured by: MAY BERNIER

Location: UPSTREAM OF BRIDGE TO BODY SHOP ON ABUTMENT

i) Survey Data Table

Date	Time		Gauge Reading	Photograph Number		Ice Conditions		Ice Thickness (ft.)	Condition of Watercourse (Description)	Condition of Gauge		Condition of Culvert/Bridge	
	In	Out		Looking Upstream	Looking D/Stream	Yes	No			Operational	Non-Operational	Plugged	Open Flow
27-04		8:45	0				✓		rapid				✓

ii) General Comments on Condition of Walker Brook

Date:
27·04

Comments:
LIGHT RAIN

WALKER BROOK FRESHET MONITORING PROGRAM

Cumming-Cockburn & Assoc.
Spear-MacDonald & Assoc.
for
ENVIRONMENT NEW BRUNSWICK

Gauge No. 27

Gauge Datum: 132.031

Measured by: MAX BRANNER.

Type: STAFF GAUGE

Location: UPSTREAM OF BRIDGE TO BODY SHOP ON OLD WOOD ABUTMENT

i) Survey Data Table

Date	Time		Gauge Reading	Photograph Number		Ice Conditions		Ice Thickness (ft.)	Condition of Watercourse (Description)	Condition of Gauge		Condition of Culvert/Bridge	
	In	Out		Looking Upstream	Looking D/Stream	Yes	No			Operational	Non-Operational	Plugged	Open Flow

ii) General Comments on Condition of Walker Brook

Date:

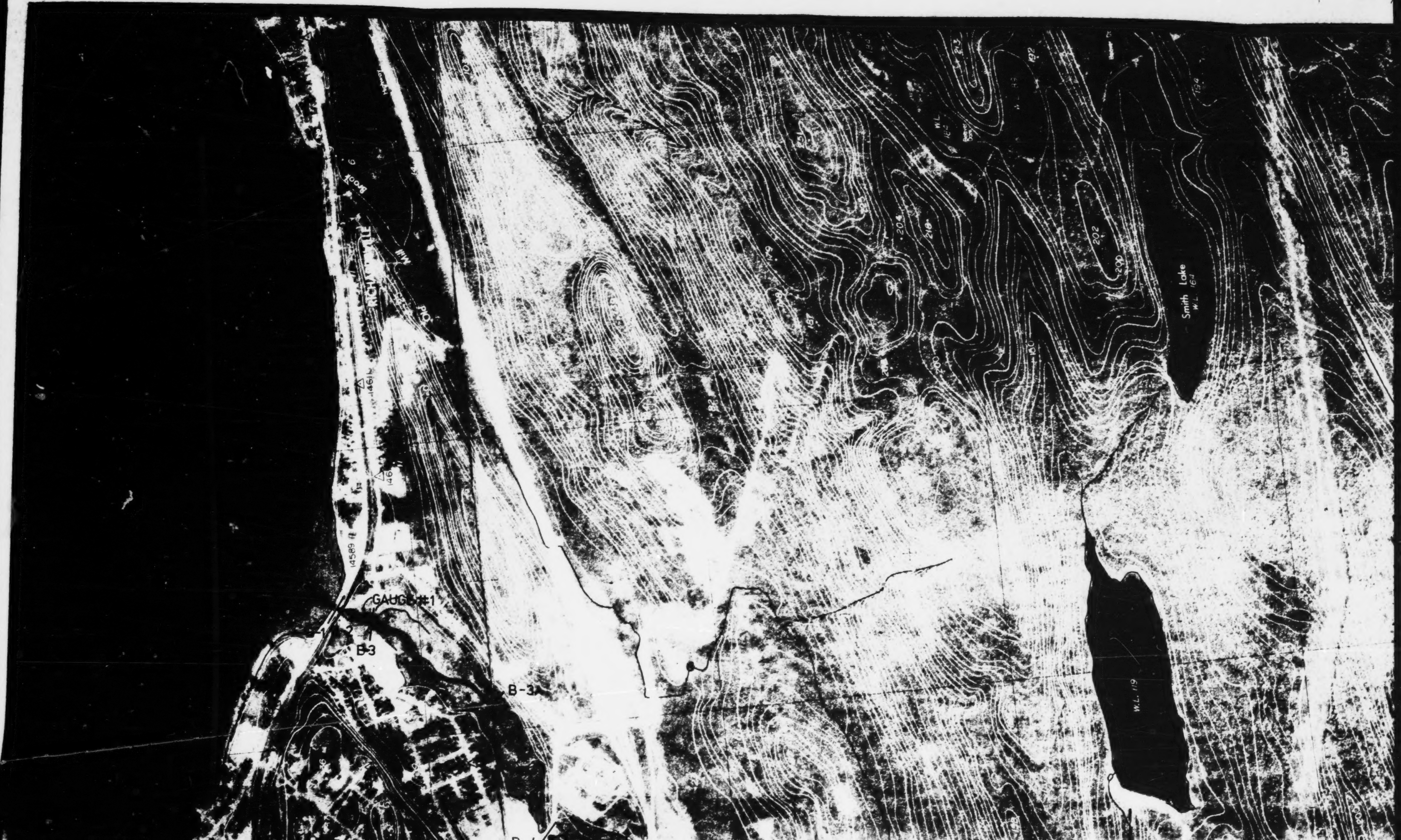
Comments:

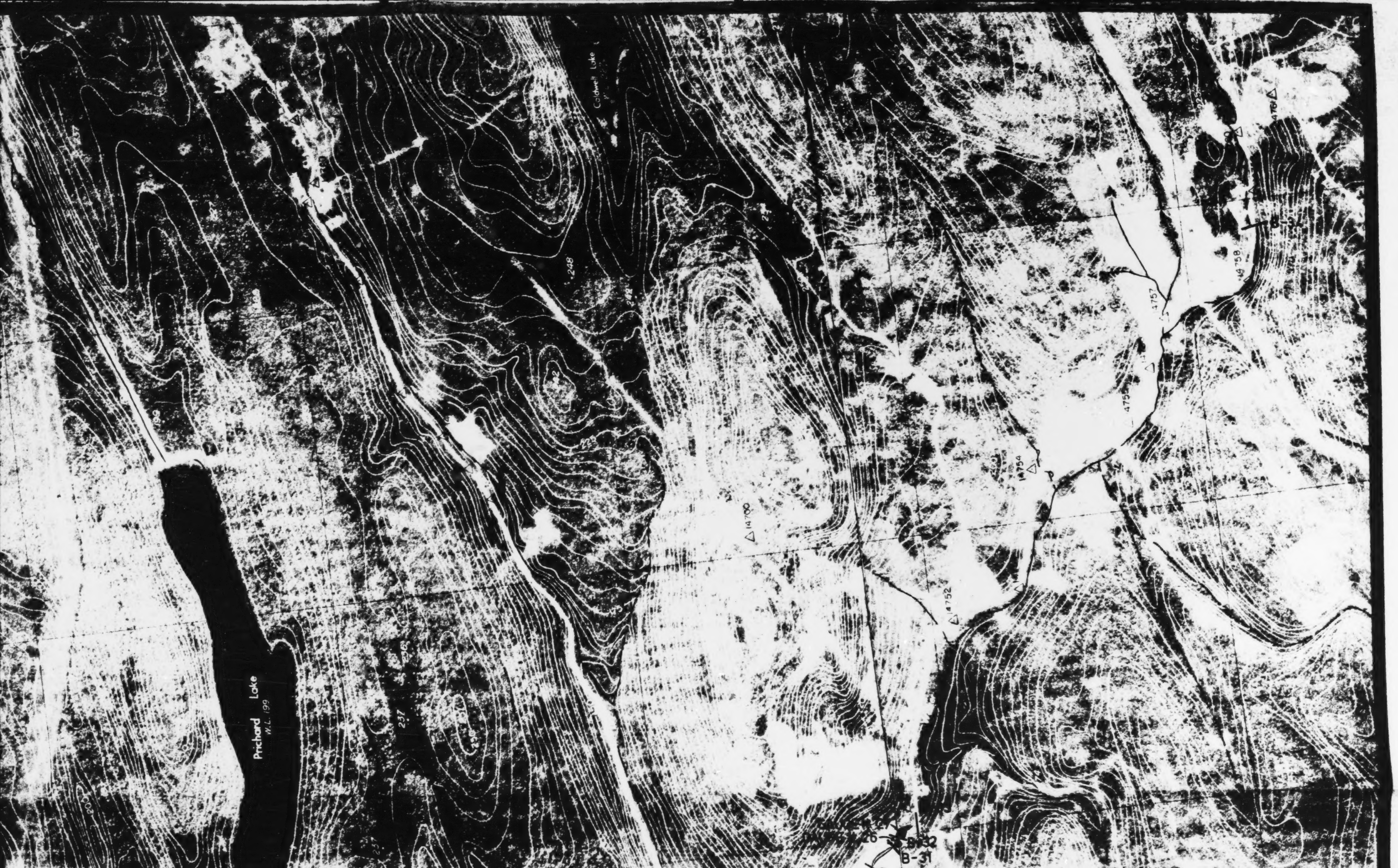
SECTION F - FIGURES

Figure No. 1 - Structures and Gauge Locations

Figure No. 2 - Cross Section Locations

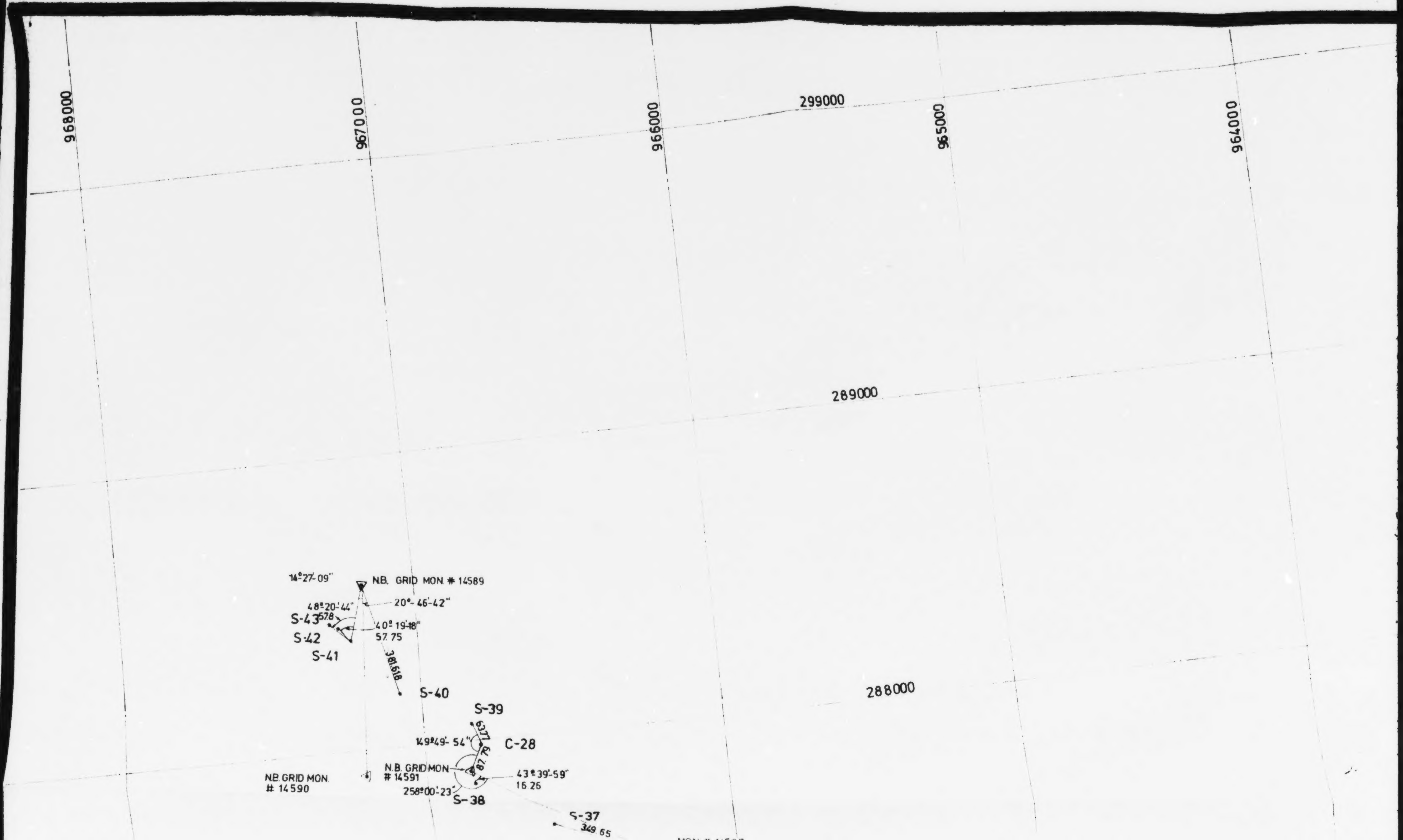
Figure No. 3 - Survey Data

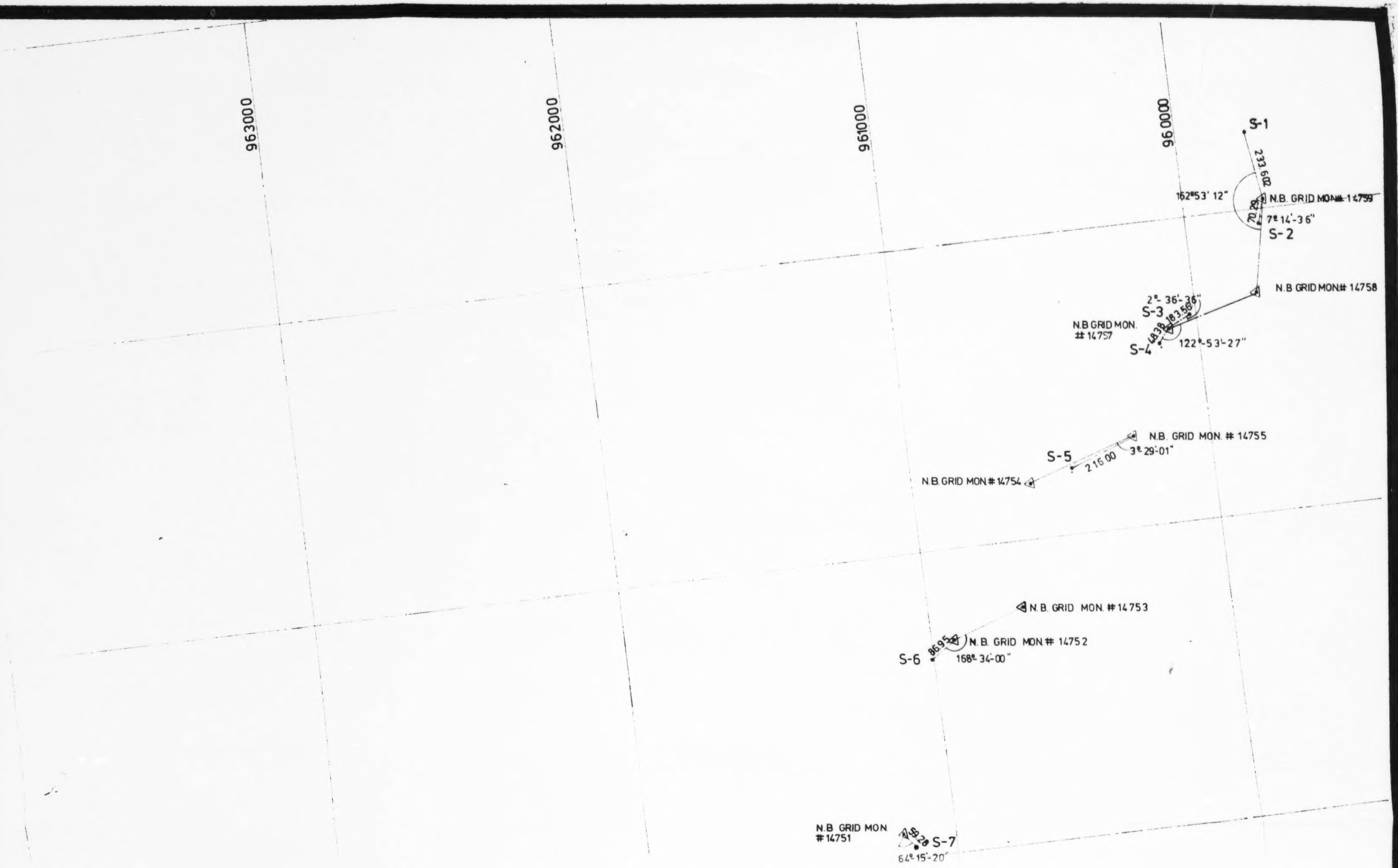

Brook
6
Mill
RICH
LLE
Old
Rd
△ 1461
△ 146
14589
GAUGE #1
1
2
B-3
B-3
B-1
202
200
204
218
192
194
160
Smith Lake
W.L. 164
W.L. 119

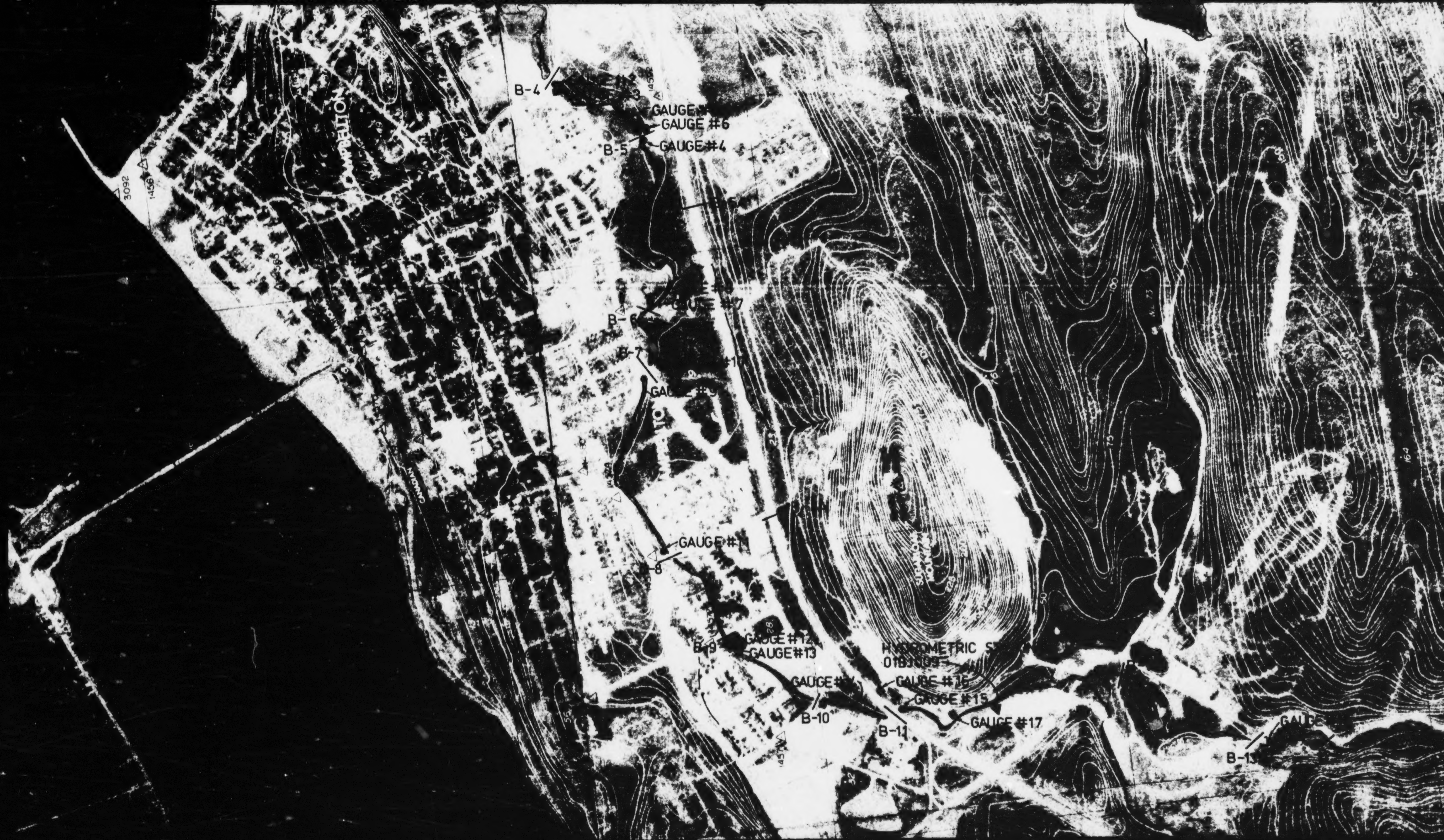

Coldwell Lake
Prichard Lake
W.L. 199
248
237
14700
14752
14754
P
14755
14757
14758
B-34
14761
26
B-32
B-31

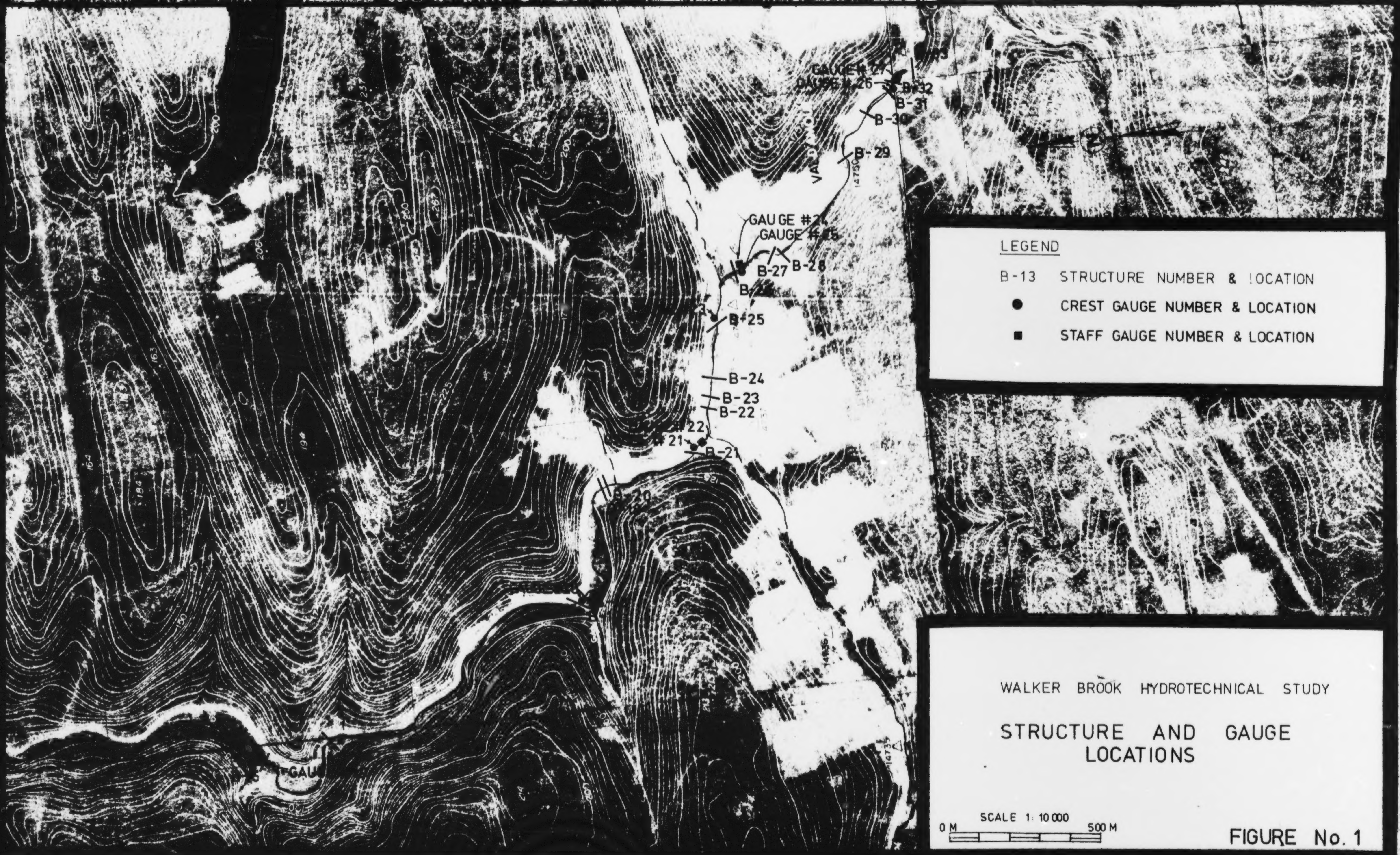
RICHARDSVILLE
Old Mill Brook
Smith Lake
146
337
389
LTON
251
204
216
202
200
192
179
198
187

Prichard Lake
W.L. 96
Caldwell Lake
W.L. 227
S-4
S-5
S-6
14757
242
236
237
230
199
248
249
225


968000
967000
966000
965000
964000
299000
289000
288000
14°27'-09"
N.B. GRID MON. # 14589
20°-46'-42"
48°20'-44"
57.8
S-43
40° 19'-18"
57.75
S-42
S-41
381.618
S-40
S-39
63.77
C-28
149°49'-54"
87.79
N.B. GRID MON.
# 14590
N.B. GRID MON
# 14591
43° 39'-59"
16.26
258°00'-23"
S-38
S-37
349.65
MON. #


963000
962000
961000
960000
S-1
233.600
162°53' 12"
N.B. GRID MON# 14759
70.20
7° 14'-36"
S-2
N.B GRID MON# 14758
2°- 36'- 36"
S-3
183.56
N.B GRID MON.
# 14757
48.38
S-4
122°-53'-27"
N.B. GRID MON. # 14755
S-5
215.00
3° 29'-01"
N.B. GRID MON# 14754
N.B. GRID MON. # 14753
86.95
N. B. GRID MON.# 14752
S-6
168°- 34'-00"
N.B GRID MON.
# 14751
59.28
S-7
64°-15'-20"


CAMPBELLTON
3092
B-4
GAUGE #6
B-5
GAUGE #4
GAUGE #7
B-6
B-7
GAUGE #9
GAUGE #11
B-8
B-9
GAUGE #12
GAUGE #13
B-10
B-11
HYDROMETRIC ST
01BJ009
GAUGE #16
GAUGE #15
GAUGE #17
B-13
GAUGE



LEGEND

B-13 STRUCTURE NUMBER & LOCATION

● CREST GAUGE NUMBER & LOCATION

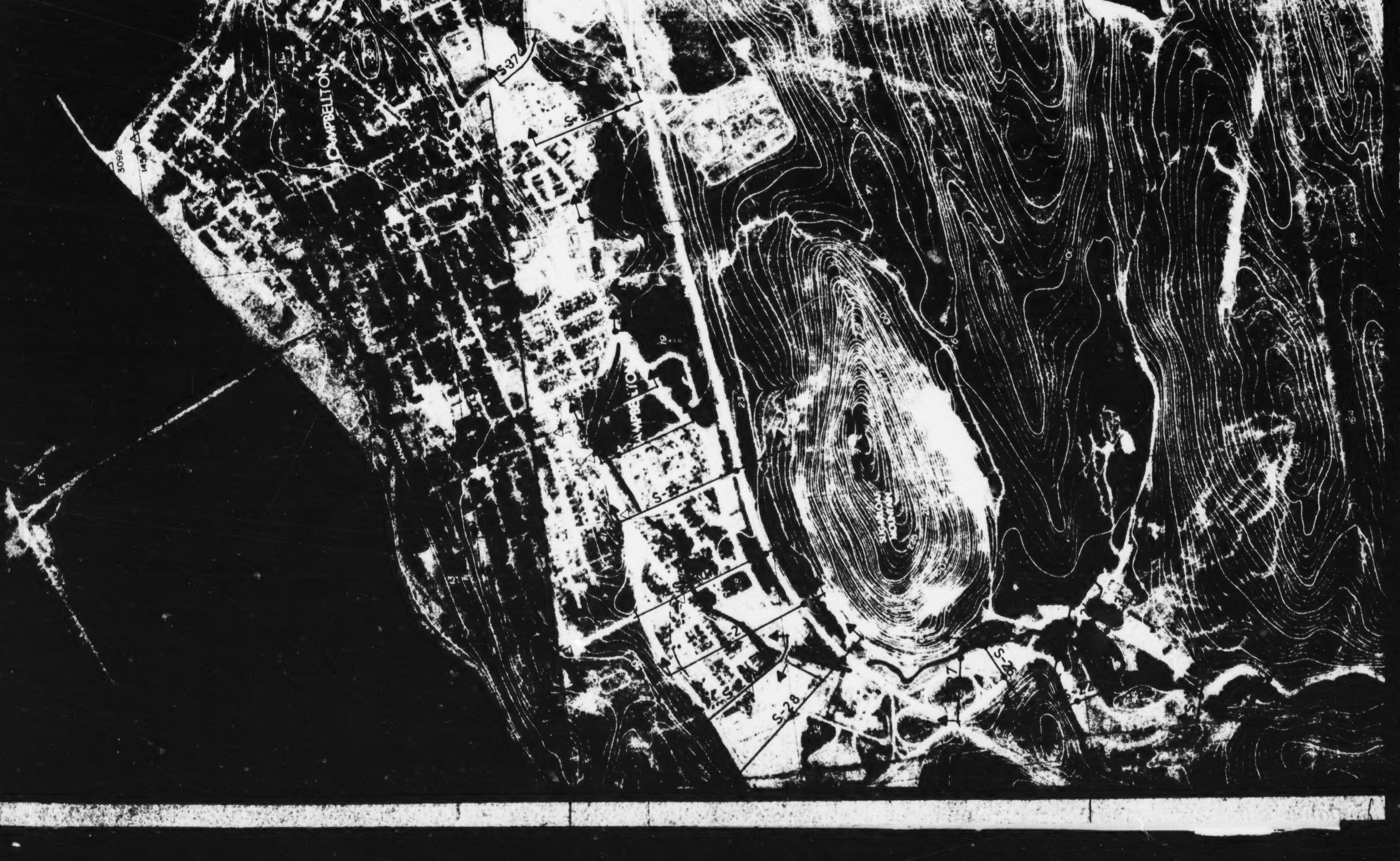
■ STAFF GAUGE NUMBER & LOCATION

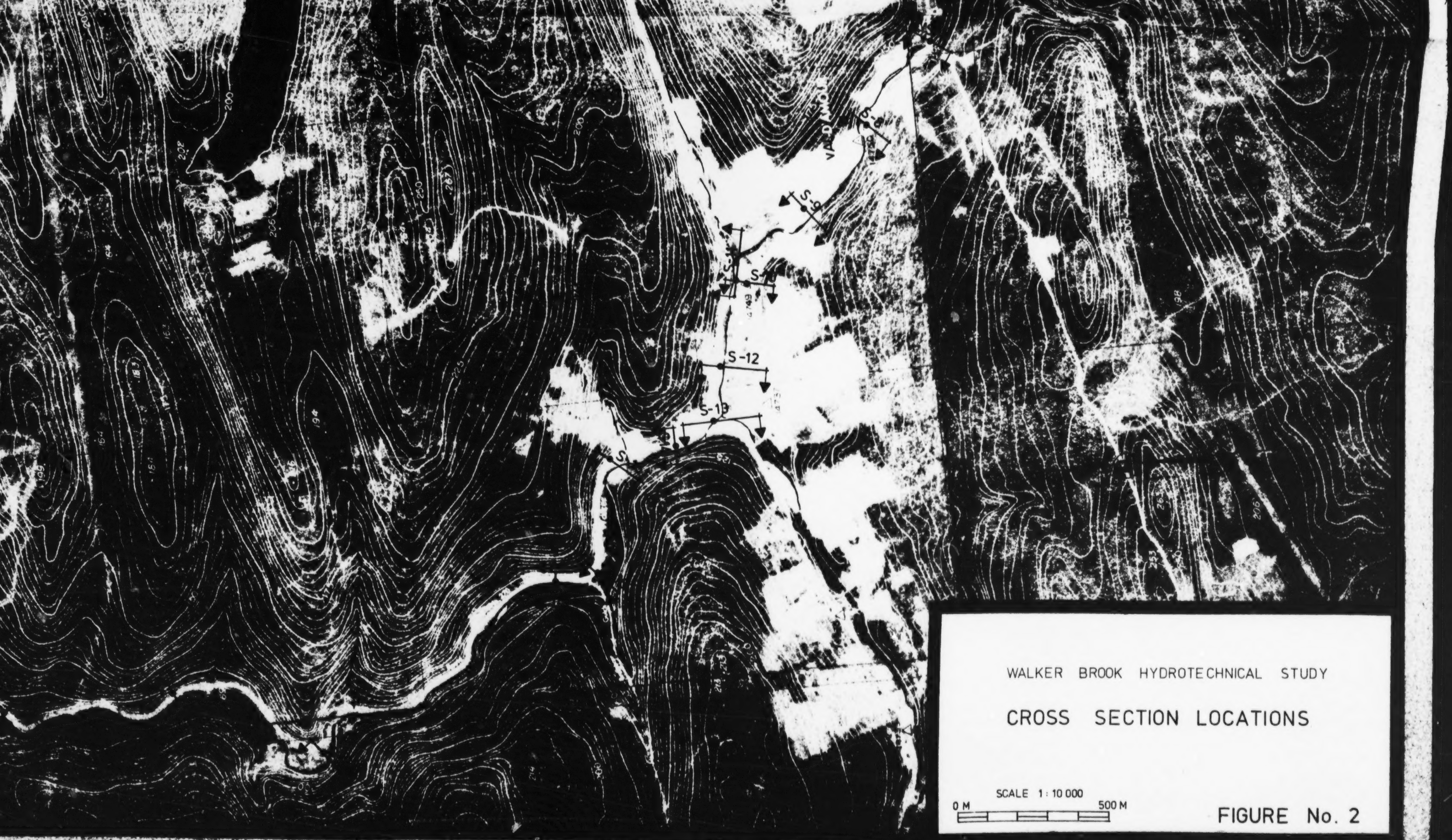
WALKER BROOK HYDROTECHNICAL STUDY

STRUCTURE AND GAUGE LOCATIONS

SCALE 1: 10 000

FIGURE No. 1


CAMPBELLTON
S-37
3092
CAMPBELLTON
23
SUGARLOAF MOUNTAIN
S-28
S-2
S-28
S-26
7

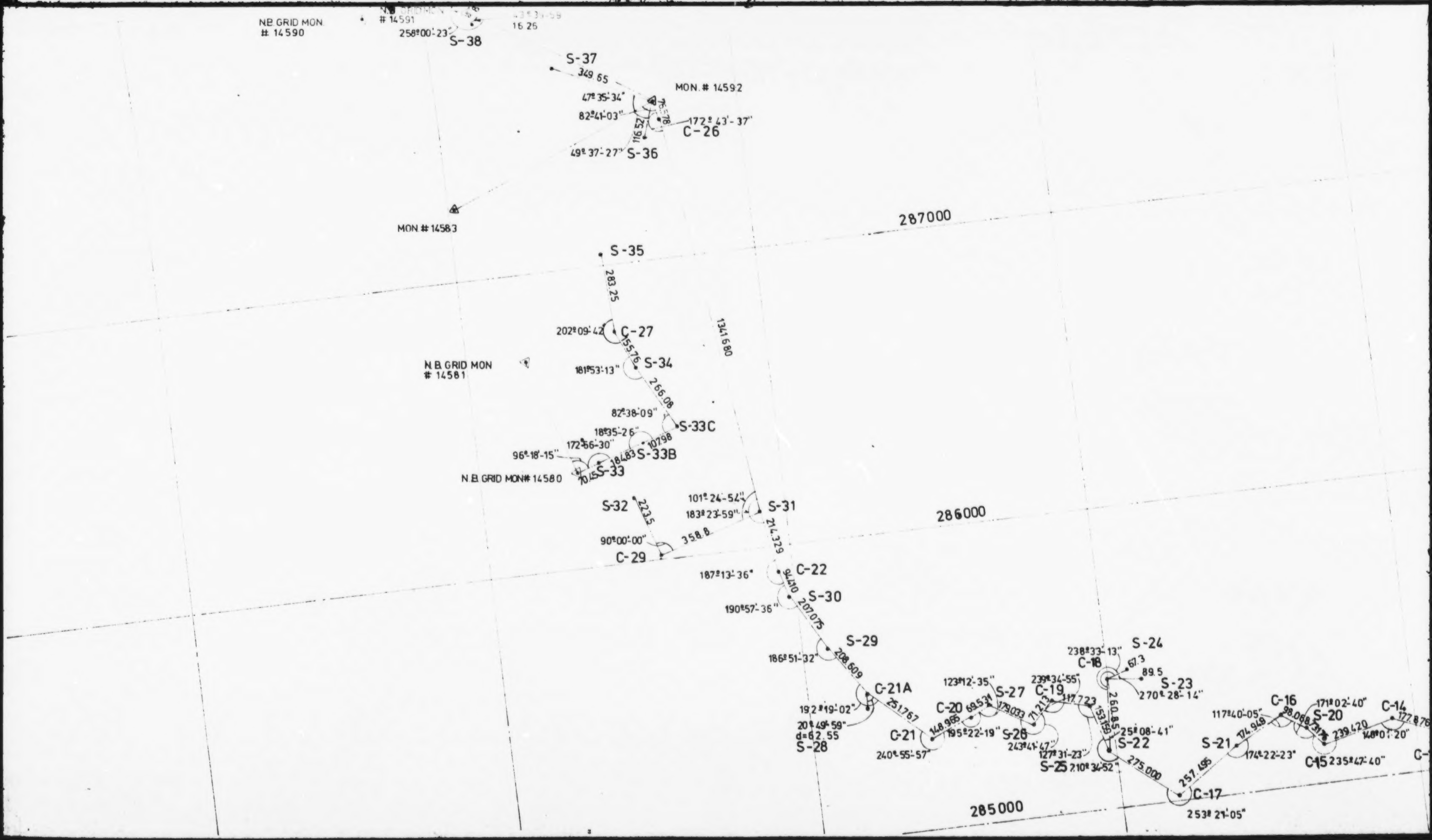


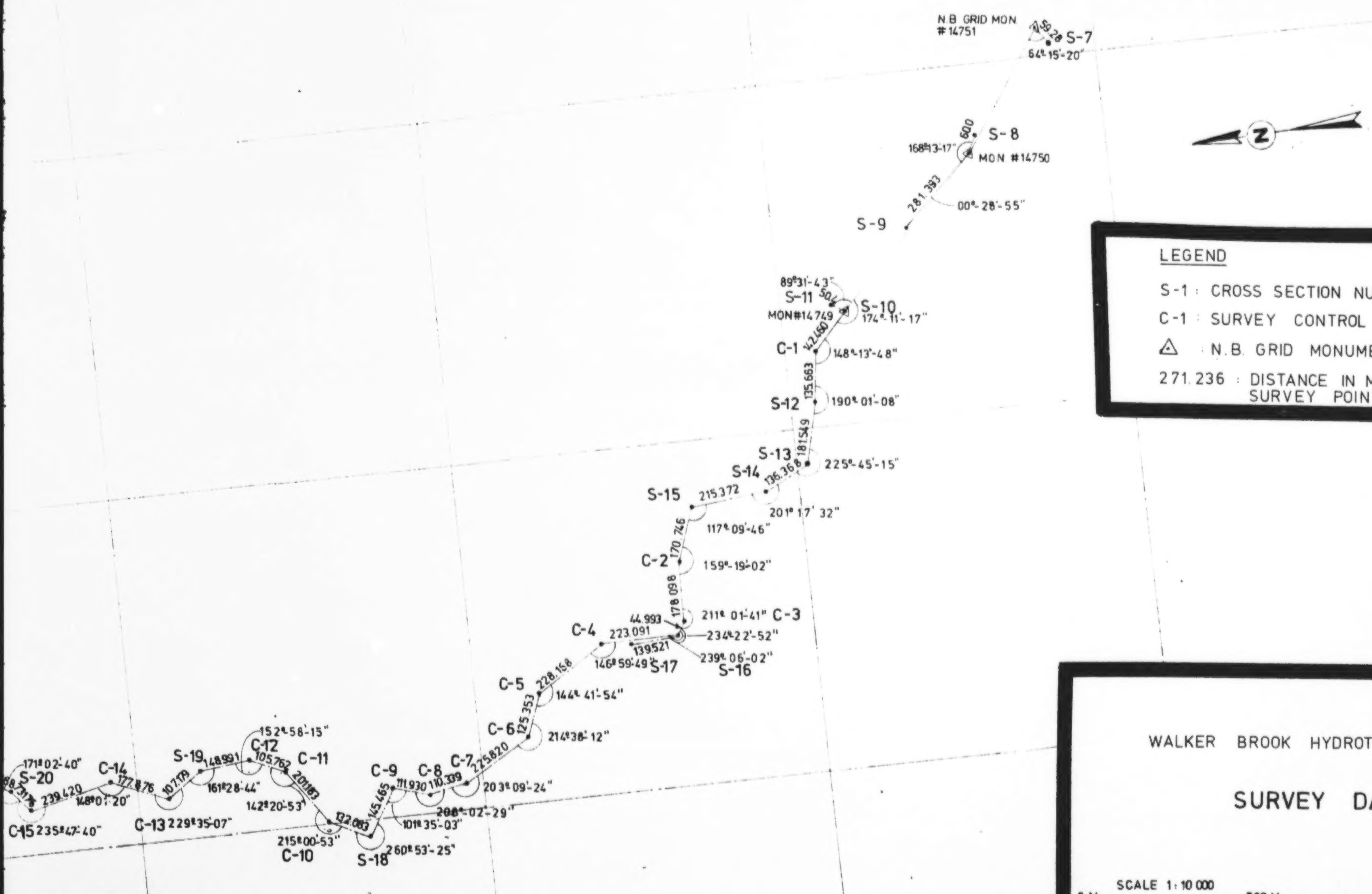
WALKER BROOK HYDROTECHNICAL STUDY

CROSS SECTION LOCATIONS

SCALE 1 : 10 000

FIGURE No. 2


NB. GRID MON. # 14590
N.B. GRID MON # 14591
258°00'-23"
S-38
16 26
S-37
349.65
MON. # 14592
47° 35'-34"
82°41'-03"
172° 43'-37"
C-26
116.52
49° 37'-27"
S-36
MON # 14583
287000
S-35
283.25
1341.680
202°09'-42"
C-27
155.76
N.B. GRID MON # 14581
181°53'-13"
S-34
266.08
82°38'-09"
S-33C
18°35'-26"
107.98
172°56'-30"
96°-18'-15"
18.483
S-33B
70.45
S-33
N.B. GRID MON# 14580
S-32
223.5
101° 24'-54"
183° 23'-59"
S-31
214.329
90°00'-00"
358.8
C-29
286000
187°13'-36"
94.410
C-22
S-30
190°57'-36"
207.075
S-29
186°51'-32"
208.609
C-21A
192°19'-02"
20°49'-59"
d=62.55
S-28
251.767
C-21
240°-55'-57"
C-20
148.965
69.531
123°12'-35"
S-27
195°22'-19"
179.033
S-26
243°41'-47"
C-19
239°34'-55"
71.213
117.723
127°31'-23"
S-25
210°34'-52"
153.159
C-18
238°33'-13"
S-24
67.3
89.5
S-23
270°28'-14"
260.85
25°08'-41"
S-22
275.000
285000
C-17
253° 21'-05"
257.495
S-21
174.949
174°22'-23"
117°40'-05"
C-16
98.068
31.78
171°02'-40"
S-20
C-15
235°47'-40"
239.420
148°01'-20"
C-14
177.876



LEGEND

S-1 : CROSS SECTION NUMBER

C-1 : SURVEY CONTROL POINT NUMBER

△ : N.B. GRID MONUMENT

271.236 : DISTANCE IN METRES BETWEEN SURVEY POINTS

WALKER BROOK HYDROTECHNICAL STUDY

SURVEY DATA

SCALE 1: 10 000

0 M 500 M

FIGURE No. 3